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General Article

THE REARING OF CALVES FREE FROM THE MAJOR DISEASES OF CATTLE*

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The adage "Prevention is better than cure," is an old one, and one which cannot be kept too closely in front of us to-day. The time when the veterinarian's task was solely or chiefly to cure sick animals is gradually passing into the realms of history.

The prevention of contagious diseases amongst adult cattle presents, however, many difficulties, not least of which is that herds are frequently seriously infected with more than one such disease. The most important of these contagious diseases are abortion, tuberculosis, mastitis, and Johne's disease. The greater number of adult cattle are infected with one or other of these, many with more than one. In adults, therefore, it is, for practical reasons, an impossibility to deal with all at the present time. The eradication of one disease can be, and is being, carried out on a large number of farms, but on few is it possible to deal with more than one at a time.

With calves, however, the position is different; they are nearly always born free from tuberculosis, Johne's disease, and mastitis infection, and although they may be born with the causal organism of contagious abortion, they are resistant during early life, and soon overcome it.

The protection of calves from infection offers a profitable line of attack, and one which can and should be the means of rearing healthy herds for the future.

The decision whether preventive or curative measures shall have more attention depends on many things. Obviously, the possibility of curing a disease is an important factor. Economic and sentimental considerations, however, play a large part. To realise this, we have only to compare the development of veterinary science in South Africa, Australia and similar countries with that in our own, or to compare even in our own country small animal practice with that amongst farm animals. In a country where individual animals are of relatively low value, where farms are large and widely separated, the treatment of individuals is obviously not an economic proposition; in a country such as this, on the other hand, where there is a large proportion of animals of great individual value, and where the average value of stock is high, and the distance between farms small, it is bound to be of far greater importance. There is, moreover, a marked contrast between the methods used in dealing with disease in the different species of animals. Diseases of sheep, pigs, and poultry are all dealt with by treatment in the mass, whilst those of dogs, excepting perhaps hounds, are for sentimental reasons dealt with individually, and the same applies to some extent to horses, although under war conditions, where serious epidemics threatened, mass methods had to be used. Cattle diseases occupy a somewhat intermediate place. Individual animals are still of sufficient value to make their treatment worth while, but there is an increasing tendency on the part of the farmer to look for means of preventing disease in herds as a whole, by means of vaccines or adequate nutrition; and good hygiene should also be emphasised, including—as the first and most important provision—the avoidance of the entry of contagious disease. The day when the bottle of medicine was received with blind faith is going, and is being replaced by the wish for early diagnosis and preventive measures based on an accurate knowledge of the ætiology and nature of the disease.

The methods used in controlling or preventing a particular disease vary according to its nature, whether it is contagious, whether it can be controlled by vaccines without the danger of producing carriers (*i.e.*, reservoirs of infection which show no symptoms)—the great drawback in the case of most living vaccines—and whether, if a bacterial disease, the causal agent is saprophytic or spore-forming and apt to be always present in the environment, or is a pure parasite spread from animal to animal.

To come now to the contagious diseases of cattle. As stated, contagious abortion, tuberculosis, streptococcus mastitis, and Johne's disease are undoubtedly the main scourges of cattle to-day. Their relative importance varies from herd to herd, district to district, and

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according to whether or not one gives main consideration to the danger to human beings. But together they extort a huge toll from the already shrunken profits of cattle owners. It has been shown that the first three of these, and probably also Johne's disease, can be controlled, and ultimately eradicated, by using suitable measures for diagnosis and preventing the spread of infection from diseased to healthy animals. In most cases, however, only one disease has been attacked at a time, even where premises and money are adequate, and it is difficult or impossible to do more on the great majority of farms.

It is because the difficulties of attempting to eradicate more than one disease at a time are great, that I have taken as my subject to-day the building up of a new herd free from all of the four diseases mentioned by protecting the calves from infection. The calves of to-day are to-morrow's herds; they are, as already stated, born healthy and they can be maintained healthy, if suitable precautions are taken. It is an extremely fortunate circumstance that this is so, because it enables a keen owner, backed by his veterinarian's knowledge of the epidemiology of these diseases, and willing to take a little trouble, to control and eradicate all of these four diseases in one concerted effort.

The precautions to be taken naturally vary according to the disease in question, but they have sufficient in common to make them easily carried out in an attempt to get rid of all diseases in one bovine generation. They can be applied where otherwise only one disease can be tackled at a time, and where even that may be difficult. Moreover, many an owner, who does not look favourably on the testing of his adult cattle for even one disease, knowing the probability that a large percentage will prove to be infected, may well be impressed with the advantage of protecting from infection his young animals, most of which are undoubtedly born healthy.

The protection of calves from infection does not greatly interfere with ordinary farm routine, because on the average dairy farm, calves are normally separated from their mothers early, and can well be looked after by one attendant, even if such is not the usual procedure. And when they reach the age at which they go out to grass, they are usually pastured separately from the dairy cattle.

All of the diseases considered have certain points in common: all are contagious diseases caused by bacteria which are pure parasites and cannot multiply except in the living animal, though the length they can live outside the animal body varies: in all of them there exist a large proportion of animals which show no obvious symptom, but which are, nevertheless, infected, and may therefore spread infection to other animals. Infection can therefore only be detected by special methods of testing: methods depending on an allergic state (tuberculin and johnin tests), the demonstration of antibodies (blood tests for contagious abortion) or the demonstration of the causal organism as in cultural examination of milk samples for streptococci. With the possible exception of streptococcus mastitis, all the diseases mentioned are incurable, and in all cases lifelong infection, or the necessity for the disposal of the animal on economic grounds, is a common sequel. All may remain latent in a herd for some time but, when conditions become suitable, give rise to serious and costly disease. They differ, however, in the ways in which they spread, the susceptibility of animals at different ages, and in the time which may elapse between infection and the appearance of symptoms.

Contagious Abortion

In contagious abortion infection occurs by the ingestion of infected food or water, or, as has been clearly shown experimentally, *via* the conjunctiva, or even the intact skin. Infected animals may abort, or—what is equally serious—may not abort but become permanent carriers and spreaders of infection.

Calves are, as previously stated, relatively resistant, and this fact is the one of outstanding importance in the control of contagious abortion. Calves only become strongly susceptible at the time when the reproductive organs mature.

Calves born of infective mothers usually carry the causal organism, *Br. abortus,* in their stomach, intestines, and other organs, but most of them get rid of the infection within a relatively short period, unless the infection is continued by feeding infected milk. Calves, whether born infected or not, will, if fed on milk which contains *Br. abortus* (the milk of a considerable percentage of animals which have aborted or which are reactors contains *Br. abortus*), carry the infection as long as infected milk is fed, and for a short period afterwards. They free themselves, however, when milk feeding ceases, and soon no longer react to the blood agglutination test.

That is to say, in milking herds, young animals are nearly always free from infection by the time they reach the age of six to seven months (rather later in beef herds), and will remain so, as long as they are not exposed to new infection. This can be avoided by preventing all contact with adult stock either directly or indirectly.

It is true that a small proportion, less than 10 per cent., may remain infected, but it is usually considered that these can be picked out by a single blood test, which should be carried out before service or soon afterwards. The

difficulties of rearing a herd free from *Br. abortus* infection are thus not great, and can be undertaken on most farms where young stock are reared.

Chronic Streptococcus Mastitis

Chronic streptococcus mastitis is a contagious disease of the udder caused by *Str. agalactiæ* (*Str. mastitidis*). Infected animals may show permanent and pronounced changes in the udder or milk, or, in the earlier stages, transitory but recurrent disturbances of a minor character, or, in the earliest stages, no changes whatever. Often, therefore, the disease has a long incubation period, and latent cases or carriers (only detectable by laboratory examination of milk), are a marked feature of the disease. Infection cannot be transmitted by feeding, by subcutaneous or by intravenous injection of mastitis secretion or streptococci, but is transmitted by the milkers' hands, or other intermediate contact from udder to udder. Mastitis is essentially a disease of the udder and infection does not occur until the udder begins to function.

Newly calved heifers are nearly always free from infection, and can be kept so by preventing contact with infected cows. Infected cows are to be found in most herds, the percentage of infection generally rising with age. The occasional heifer that is infected can be detected by a laboratory examination of milk samples, usually long before she shows any clinical signs.

For the purpose of preventing mastitis infection, heifers should be put into thoroughly cleaned and disinfected stalls and should always be milked before any other animals in the herd.

The protection of young animals from streptococcus mastitis infection is simpler than is the case with any of the other diseases being considered, because infection occurs by one channel, the udder, and does not occur until the first calving.

There are, of course, other forms of mastitis in cattle, but there is little, if any, evidence that they can be controlled by the segregation of carriers, or by milking them last, and in general they are of much less importance. A few words should, however, be said regarding the so-called "Summer Mastitis" caused by *Corynebacterium pyogenes*. It is known that *C. pyogenes* may be responsible not only for a severe form of mastitis, usually in dry cows or heifers, but that the same organism may be the cause of severe illness or death in calves commonly associated with pneumonia. It seems more than possible that there is a connection between these two conditions, that infection of calves may be contracted directly from milk from infected cows and, secondly, that in calves which recover, *C. pyogenes* may localise in the udder. It is also possible that calves may be infected and become carriers without showing symptoms.

Tuberculosis

Tuberculosis is probably the disease which is the most difficult to control. The reason for this, of course, is that infection occurs not only by the ingestion of infected milk, food or water, but occasionally congenitally and, also, by way of the respiratory tract. The new-born calf is susceptible, and precautions must be taken from birth onwards. A careful look-out must be kept for the occasional congenital case.

Infection by means of the ingestion of infected milk can be prevented by hand-rearing with milk from non-reacting cows, or milk which has been heated sufficiently to kill all tubercle bacilli in it, *i.e.*, which has been pasteurised or at least well scalded.

The remaining precautions, and at first sight perhaps the most difficult, are those necessary to prevent infection by the respiratory tract. That means that calves should be kept well away from all adult cattle, and given good, airy, light quarters which have been well cleansed and disinfected. They should not be grazed with older cattle or on pastures which have been used by adult cattle during the preceding six months or—if possible—year. In view of the ease with which tuberculosis spreads, tuberculin tests should be carried out at intervals of six to twelve months. The number of reactors should, however, be small.

Johne's Disease

In Johne's disease the method of spread is by ingestion of food or water contaminated by the fæces of affected animals. Under normal conditions symptoms do not generally appear in animals less than three years of age, but transmission experiments have shown that susceptibility is greatest in very young animals, those under six months. There is little doubt that calves are frequently infected through being kept with their mothers, and it is therefore of the utmost importance that calves should be removed from their mothers at birth, reared by hand in clean adequately disinfected pens, and put later into clean yards or on to pastures which are not and have not recently been occupied by older stock. They should, in other words, be removed entirely from contact with older cattle.

It will be observed that the precautions to be taken in the case of Johne's disease are included in those which are necessary in the case of tuberculosis.

Other Diseases of Calves

The maintenance of calves under clean conditions without overcrowding should also do a great deal towards the prevention of diseases which are purely those of calf-hood. In certain instances, of course, disease in the calf may result from infection from the mother. Actual

outbreaks of calf disease are, however, probably usually the result of infection from calf to calf, and too much care cannot be taken to ensure that calves have clean, light, airy quarters instead of—as is too common—the darkest and most ill-ventilated box on the farm which in many cases, moreover, is cleansed inadequately. Finally, when suitable pens are used, the practice of keeping calves in small groups, or if possible in separate small pens during the first two weeks of life is strongly to be recommended. It obviously decreases the chance of spread from calf to calf. Overcrowding in pens or at pasture should in any case be avoided.

Colostrum

The value of colostrum is, of course, well established, and when calves are removed for any reason from their mothers at birth due care is necessary to see that they get adequate amounts during the first two days. The only reason for withholding this would be where the mother had udder tuberculosis.

GENERAL DISCUSSION

No attempt has been made to go into any detail regarding the epidemiology of abortion, mastitis, tuberculosis, or Johne's disease. My object is to look at the prevention of these diseases in rather a different light, and to provoke a discussion on the practicability of attacking all of them in one effort. The important fact to bear in mind is that calves are born healthy, and can without question be kept so by adequate precautions.

Summarising the necessary measures: During the first year precautions will be directed towards preventing infection with tuberculosis and Johne's disease, bearing in mind that Johne's disease may be contracted by the ingestion of food or water contaminated by fæcal material from affected animals, and that tuberculosis may be contracted by the same means, by milk from an infected udder, and also by inhalation. Pyogenes infection and certain other diseases, such as calf scours, may also be contracted early in this period.

During the second year, calves are already more resistant to Johne's disease and probably also to some extent to tuberculosis, but precautions against infection with these diseases must be continued. Contagious abortion must now be avoided, particularly towards the end of the second year, when breeding commences, or a little earlier in the case of Channel Island cattle. The fact that infection is commonly by the mouth, although it may also possibly occur through the eye or skin or by milking, should be borne in mind. Calving is the dangerous time, and necessitates the use of calving boxes.

During the third year, similar precautions must be taken against the three diseases already mentioned and, as soon as calving occurs, measures directed against streptococcus mastitis must be added to the list. Here it has to be remembered that streptococcus mastitis is carried mainly, if not wholly, by the milkers' hands. If this new herd is in a separate shed, and has separate attendants, no danger should arise. By this time, susceptibility to infection with Johne's disease has markedly decreased, whilst that to tuberculosis is probably less, although this of course does not mean that adult cattle cannot contract tuberculosis if the infection is heavy.

I believe that, during the first two or three years of such a programme as I have outlined, little difficulty would be encountered. Young animals are kept more or less apart in many herds at the present time. A little tightening-up would be needed, but no radical alteration in methods. The main difficulty would come when the first batch of heifers was coming into production. A separate cowshed would then have to be provided, and due precautions taken to prevent infection from the older animals or their surroundings. I do not think, however, that this should prove insuperable or even very difficult. We already know that diseases which are spread easily, like tuberculosis and abortion, can be eradicated, and the same general precautions apply to all the diseases mentioned, though in some they need to be more stringent than in others. The impossibility of commencing to attempt control of all these diseases at one and the same time amongst adults, due to the practical impossibility of finding many animals affected with none or of forming numerous separate groups, would not apply. One herd or group of animals, *viz.*, the younger ones, would be kept free from all of the diseases mentioned. It is, of course, not to be expected that no breakdown would occur and occasional tests should be carried out to ensure the health of the young herd, but the number of breakdowns would be small and the results of the tests eminently satisfactory to the owner. Any animals which became infected would be forthwith drafted to the group containing the older animals. The older group would be scrutinised carefully from time to time, and all animals not clearly profitable would be culled. Nothing further would be attempted here except to remove obvious cases of tuberculosis or Johne's disease, and to take the elementary precautions against the spread of the other diseases. Before many years the original adults would be replaced by animals which had been protected from birth and which were healthy.

Finally, the financial gain obtained by freedom from the four diseases mentioned would be enormous, and would amply repay the outlay

expended in trouble, possible structural alterations or new fencing, and necessary tests.

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Discussion

The discussion was opened by Mr. H. S. Caldwell, who said: I am sure we are all grateful to Dr. Stableforth for his interesting paper—this big question of the attack on the major infections of cattle is approached from a most important angle. I agree that, when circumstances permit, it would be advisable to deal with these infections all at the same time.

The Economic Advisory Council's Committee on Cattle Diseases recommended the launching of a comprehensive attack on tuberculosis only, at first, although they say: "the technical assistance . . . . together with the advice and guidance of the veterinary officers during their routine examinations of the herds, should be sufficient to enable the farmer to eradicate these diseases."

The amount of trouble involved in the eradication of tuberculosis would not appeal to a majority of farmers, in whose herds the other infections cause greater loss, but, if there were a corresponding reduction of these other diseases, enthusiasm for the scheme would be awakened.

The rearing of young stock away from the infected dairy herd would be an important part of any eradication scheme. In some herds this would not be difficult, as the stirks are often kept on land which is inconveniently situated for the milking herd. In some herds the method is inapplicable.

Regarding *Br. abortus* infection, if calves were removed from their mothers and reared away from infection. or became free from infection, there would probably be occasional disappointments, in some premises, even with the best hygienic measures, when they became a milking herd. I would like Dr. Stableforth to say whether he is of the opinion that one blood test would be sufficient for a group of heifers, before admitting them to an already free herd. In eradicating *Br. abortus* infection it would probably be more successful to deal with all the members of the herd, the infection being so readily transmitted.

Concerning streptococcal mastitis, the definite age-incidence of streptococcus-infected milk samples is what one would expect from experience in the field, but heifers are not infrequently affected with mastitis. I have examined herds of first-calvers where no older cows are maintained; such animals are generally very healthy, but mastitis is sometimes present.

The milking of the in-coming heifer herd first is stated to be a safe method of preventing the spread of this infection to them. In my opinion, it would be necessary to have separate stools and pails, and, when machine-milked, separate units. In open-air dairies the heifer herd would require separate range and bails, as the order of milking cannot be rigidly adhered to.

I do not think very much progress will be made with regard to Johne's disease until the methods of testing or diagnosing have been improved. Has Dr. Stableforth any new information for us about johnin? It is helpful to think that infection is carried from contact with the cow throughout the calf's early life. I have recently seen badly infected heifers, which have been kept on pastures where all the water supplies have failed, and the water hauled was almost certainly free from the Johne's bacillus for many months. Had they been removed early from contact with the cows they might have remained free from the disease.

We come now to tuberculosis, and in regard to this disease I may say that the raising of non-infected young stock is more hopeful than the practice of vaccination. Rearing calves along lines similar to those advocated, together with very close supervision of dairy herds, is the official policy in the attack on tuberculosis in some countries and encouraging results are reported.

The advantages of attacking the other diseases at the same time, in suitable circumstances, have been mentioned already.

The resistance to infections should be aided by careful attention to nutrition of the young stock. It is not infrequently observed that stirks are, in some seasons, under-nourished and heavily parasitised. This should be remedied.

Major J. Stewart Wood observed that he had been very interested in what Dr. Stableforth had said, but he was not quite sure if the essayist's remarks were based on theory or whether they had been put to a practical test. It seemed to him that Dr. Stableforth had taken very little notice of the immunity that was either acquired naturally or by injection of various vaccines, but he had certainly simplified the treatment of disease if it was all going to yield to isolation when young. Personally, he rather favoured the idea that disease was necessary to health, and that attacks of a disease in early life helped to give an immunity which might be lasting or for a period until renewed by re-infection. If they were going to eliminate all the natural sources of immunity were they not going to lay their animals open to very severe attacks of disease when it came along later? He tried inoculation against tuberculosis some few years ago and he found that the most difficult thing was to get the farmer interested in the matter; when the bill went in that further weakened his enthusiasm for it and the whole thing was dropped. He had also heard that when a child who had been on pasteurised milk all its life was moved to another neighbourhood where pasteurised milk was no longer available, frequently it was attacked with tuberculosis. Was Dr. Stableforth prepared to dispense with the safeguard of disease against disease?

The President (Mr. J. F. D. Tutt) having thanked Dr. Stableforth for his paper, enquired

whether he had had any experience of vaccinating calves against tuberculosis. Of the four diseases Dr. Stableforth had enumerated he thought they would probably find that tuberculosis was the easiest to eradicate, provided it was tackled in the proper manner. At the present time, opinion seemed to be divided as to whether pasteurised milk was superior to ordinary milk, but if it was so there was no need to worry so much about infected milk. With regard to abortion, he thought the best plan was to test the herd, clear out all the reactors as quickly as possible, and then retest again in, say, six months' time, isolating any new stock until the result of the blood test was known. He would also like to know whether Dr. Stableforth had any direct evidence of human infection with *Brucella abortus* from milk, and whether he did not consider that a cow naturally infected was more likely to infect a human being than one which had received a dose of vaccine.

Had any test yet been perfected for the detection of Johne's disease? He had recently tested a herd of seventy animals, in which he was certain there were some that were infected, but he had not yet got any reactions.

Mr. G. N. Gould said he was very much interested, for several reasons, in the subject of the prevention of disease. He had a number of herds from which he had been trying to eradicate some of those diseases, and, speaking from practical experience, he must say that he found it very difficult to provide the alternative, or additional, grazing ground necessary to keep animals isolated: it was not at all easy and it was certainly very much more difficult than the average person realised. Another thing with which they had to contend was the mentality of the workers. It was very difficult to get the cowman even to wash his hands and if he did, he would use the same pail of water over and over again. He had found it essential, when dealing with mastitis, to provide scrubbing brushes and soap and to go along at all sorts of odd times to see if the job was being done. One point Dr. Stableforth had not mentioned was that when one was dealing with any form of eradication of disease and starting with the young animals, it was absolutely essential that they should be kept completely isolated: they should not be allowed to graze after older animals. That was a point the importance of which they had to impress very severely upon people. He had one herd in his mind—probably one of the most celebrated herds in the country—in which all the calves were weaned from birth. In that herd calf scour was practically nil, and with regard to the incidence of tuberculosis and Johne's disease, going back over a period of ten years, he must say he had never seen a case of the latter. He tested about twenty cows every year for tuberculosis and he had never had a reactor. That seemed to indicate that by keeping one's herd more or less self-contained and by weaning the calves from birth one was taking a very great step towards the eradication of disease. Another point about this herd was that it was practically free from mastitis: he might mention that the animals were milked by machines and the system adopted, either by accident or intention, was to stable the herd more or less according to age. Every precaution was taken—the udders were cleansed prior to milking and it was also a good plan to draw a little milk from each teat before applying the machines. He thought the fault found with the milking machines was very often the fault of the people using them.

With regard to abortion, he had two schemes in hand with herds which were badly infected. In one herd the cows were tested and the test was repeated at intervals of two months. At the second test they only had two reactors, whereas at the first test they had 14 reactors out of 65, and this was in a herd where abortions had occurred every year. He had some pasture available on which no cattle had been turned for twelve months. That pasture was divided up into plots: the cows were kept on one plot during the whole of the period between the two testings and directly they had any reactors, the latter were disposed of, while the rest of the cattle were moved on to the next plot, the idea being to avoid the possibility of their picking up any infection from the first plot, which might have become infected. He might add that all the cattle in this herd were bought subject to passing the agglutination test 14 days after calving. Concerning heifers clearing themselves of infection at from six to nine months of age, he would like to know whether these heifers cleared themselves to the extent that they did not react to the agglutination test; because he knew of a heifer in a herd which was, as far as they knew, abortion-free, that had reacted to the agglutination test for three years and yet had never aborted. With regard to the eradication of Johne's disease, if they were dealing with the younger animals the great difficulty was to find pasturage which had not been contaminated to any degree, and he would like to have Dr. Stableforth's opinion as to whether they could take it as definite that ground that had not been in use for twelve months could be regarded as free from infection. In the case of abortion he believed it could be regarded as clear in three months.

One point that was receiving a great deal of prominence now was that of increasing the resistance of animals to disease. In these days of heavy milk yields, which the farmer had to get to make his herds pay, he thought that insufficient regard was paid to the value of the correct rationing and mineral feeding of cattle. In heavy milking herds with an absolutely correct system of rationing the cows were less liable to become infected.

In his opinion pasteurisation of milk was not an absolute guarantee of freedom from tuberculosis. If they were going to produce milk for human consumption it should be produced free from disease and it ought not to be necessary to render it free from infection. It was well known that pasteurised milk was not so good as ordinary milk: why, then, go to the trouble of pasteurising the milk and reducing the quality of the food, when it was possible to eliminate disease from the milk?

The Hon. Secretary (Mr. J. B. White) observed that Mr. Gould had raised a very important point when he spoke of the difficulty of getting grazing ground on farms on which the animals could be kept separate. With such a system there were heifers of one, two, and three years old to be accommodated on clean ground. This securing of clean pasture was going to be quite a big problem. In Wiltshire, at any rate, most of the dairy farms had very little arable land left that could be put down to pasture and so provide clean pasture. With regard to contagious mastitis, was that a disease which lay in the pastures at all, or was it purely a disease which was carried from one cow to another? A great many milking machines were in use in Wiltshire, and he could not help thinking that these were a big agent in spreading more than one disease. He was rather of opinion that the frequency of tuberculosis infection by means of the respiratory

tract was over-estimated and that far more was spread by means of the ingestion of infected pasturage. He had a case in mind where a batch of heifers from a clean farm was split up, some going to graze on infected pastures and the remainder staying on the clean farm. In four to five months' time fifty per cent. of those which went to the infected ground reacted to the tuberculin test, whereas only five to eight per cent. of those which stayed behind reacted to the test.

Mr. Gould said there was one remark he would like to make in connection with abortion, if he might refer to this again. This was that if they were really getting down to prevention in this country it was time the profession came to some sort of agreement as to whether inoculation of cattle with live vaccine was to continue. There were various arguments for and against it, but one rarely came across any statistics that could be relied upon. They got no account of the breakdowns; they only heard of the cases where inoculation with the live vaccine was effective and he thought the time had come when they should consider whether its use was not a crime against veterinary science.

The Reply

Dr. Stableforth, in replying to the discussion, remarked that he had been more than repaid for coming down that afternoon by their asking him so many questions. He would answer them to the best of his ability, and, if he inadvertently omitted any, perhaps they would kindly repeat them. With regard to mastitis in heifers, they examined a large number of milk samples for this disease at the Institute and the vast majority of heifers were free and remained so provided they were kept separate or milked before infected animals. He had been asked whether he was talking from theory or from actual practice. His remarks were based on personal experience of these diseases in the field, together with the published observations of other workers, and mastitis and abortion had been the main subject of his work for the past seven or eight years. Most heifers, as he had said, were clear and, with regard to cases of mastitis in heifers kept on the Hosier system, it would be interesting to know whether they were chronic contagious mastitis or some other infection, because there were other forms of mastitis. It was suggested by another speaker that the stools might be carriers of infection. Their experience had been that, where non-infected cows were milked alone or last, the disease was controlled and there were very few new infections. He did not think the risk of infection from stools was important. They had to remember that mastitis did not spread particularly rapidly. He had been asked whether in abortion control, one blood test of heifers was enough. That must depend on what they were able to do in a herd in regard to segregation of heifers. He certainly would advise repetition of the test. It was much better to go on testing at intervals, depending on the circumstances, but he did feel that since the majority of calves were clear by the time they were nine or twelve months old, if they did one blood test and took out any reactors they were making a very good start. If pregnant heifers were at pasture, it was of the utmost importance not to risk a possible abortion, and repetition of the test was always worth while. Animals, both reactors and non-reactors, should always be calved in boxes, and he thought one of the greatest dangers in the Hosier system was that they were allowed to calve anywhere. To have them calve in boxes had great advantages. If an animal was infected, the period when the greatest dissemination of infection occurred was over within two or three weeks of calving, and, if she had been in a box all that time and all ordinary precautions were taken, they would be doing a very great deal to prevent the spread of infection. The difficulty of finding separate pastures had been raised by more than one speaker. That was a difficulty and he was the first to admit it, but he knew from actual experience that it could be got over in many herds, even though it might appear difficult at first sight. A walk over the farm frequently showed that a way could be found which was effective and yet entailed no great practical difficulties.

[Mr. Gould, interposing, remarked that the only hope he saw for this sort of thing was to run the farms on intensive lines. They must have small plots, analyse the soil and intensify their grass production.

Dr. Stableforth: "What Mr. Gould has said is very interesting and it has much to recommend it. I admit myself that the pasture difficulty is a big one; but there are a large number of farms, where pasture is managed in the ordinary way, where I am convinced it can be got over. If the owner realises from the first that it has got to be done, he will do it."]

Continuing, Dr. Stableforth said another question had had reference to the time it took for pastures to become free from tuberculosis or Johne's disease. The information respecting this was not very extensive, but he thought if the pasture was well harrowed and exposed to the sun and the elements, they could look on it as free after a year. The question with regard to testing for Johne's disease was a difficult one. There were a number of difficulties in the use of the johnin test. One was that the reactions were nothing like so definite as in tuberculosis and there were more reactions which were difficult to interpret.

Another question that had been raised was that of immunity produced by infections in early life. Although there might be a certain amount of immunity produced by earlier infections, they could not be sure as to how it would act. Granted that an animal might get immunity from these early infections, it was going to be very difficult to distinguish between the dose that would give complete immunity, and that which would actually produce serious disease or result in the animal becoming a permanent carrier of the infection.

Mr. Tutt had raised the question whether there was not a greater danger from the injection of living abortion vaccines than from natural infection. The answer was "no." The effects of vaccination depended upon the virulence of the vaccine. If they were using a vaccine of low virulence the danger of its infecting the udder was far less than in natural infection, but, against that, there was the probability that the vaccine was not going to be so useful in preventing abortions.

Replying to a further question by Mr. Gould as to the percentage of calves that really cleared themselves of *Br. abortus*, Dr. Stableforth said a large proportion no doubt got infected milk and they were carriers of infection at the time and would react to the agglutination test. But, test those heifers three months later, and they would find the majority would have cleared themselves. If they took any batch of heifers of twelve months of age they would find the percentage of infection was very small—on an average he should say not more than five, six or possibly eight per cent. as against thirty per cent. among the herd as a whole, and frequently the heifers would show no reactors at all.

Clinical Communications

LYMPHOSARCOMA IN A PIT PONY*

J. R. RIDER, M.R.C.V.S.
Darlington

The subject of this note was a Welsh pony gelding, aged six years, which had been sent to work in January, 1934. The pony sustained a minor injury, being withdrawn from the pit in August, and sent to pasture to recuperate.

He continued in poor condition, and was treated for internal parasites at the end of September. A month later the animal had degenerated into an emaciated condition, the vermicidal treatment having proved ineffectual. A careful examination of the pony was made to determine the cause of the condition.

A state of extreme emaciation was noted. There was some thickening of the tissues in the submaxillary region, but there was no history of strangles during the past year. Slight filling of the hind limbs was also noted.

A rectal examination failed to detect any thickening of the small intestine, but a large mass possessing a well-defined border was located just posterior and medial to the left kidney. The further nature of this mass could not be determined. It was thought desirable to eliminate tuberculosis, and the animal was subjected to the double intradermal test, with negative result. It was obvious that the pony would be of no further service, and he was, therefore, destroyed.

Post-mortem examination revealed the nature of the undetermined mass. This structure was found to measure 7 by 3 by 2½ ins., and to weigh 26 ounces. It was suspended by a short mesentery which had attachments to the duodenum and the base of the cæcum, and the structure was bounded laterally by the left kidney. When removed the mesenteric vessels were found included in the right portion of the mass. Three strongyle embryos were found free in a vessel. The mass itself was discovered to be lobed, the lobes being arranged in pairs, and varying in size up to that of a large egg. The structure was dense and firm, and vessels were found penetrating the larger lobes. The mouths of branches of these vessels were, in some cases, partially covered by valve-like membranes. Pieces of pancreas and left adrenal gland were included in the dorsal attachments of the mass. The lymph glands of the double colon were enlarged and hæmorrhagic. They were found to have small white, fibrous-like areas.

The wall of the colon presented several small calcified lesions, containing calcified strongyle embryos, and a number of small abscesses containing creamy pus. No parasites were discovered in the lumen of the gut, but there was evidence of their previous presence. Other organs were normal in appearance.

A lobe of the tumour-like mass, and a mesenteric lymph gland, were submitted for histological examination to Mr. W. Lyle Stewart, to whom I am indebted for the following notes:—

> "I have made an examination of the two specimens which you sent to me and the following are my views on them:—
>
> "1. This was one half of a mesenteric gland from the colon of the pony. An examination of this section when stained with hæmatin and eosin showed apparently normal structure. The gland did not seem to be inflamed, but there was evidence of a little necrosis in the cells of the lymphatic cords.
>
> "2. This was a lobule from the large tumour mass which you detected in the region of the mesenteric arteries of the pony. I have examined this and am of opinion that it is a typical specimen of a lymphosarcoma. The tumour seems to be vascularised with imperfectly formed blood vessels. There is a little evidence of fat and a little necrosis. The presence of stellate supporting cells would appear to be diagnostic of lymphosarcoma."

* * * * *

OBSTRUCTION OF THE ŒSOPHAGUS IN A COW

W. E. BLACKWELL, M.R.C.V.S.
Towcester

In the early part of the year 1934, I was called to a case of choking in a cow. On arrival, I found a white shorthorn, in rather poor condition. She did not appear acutely distressed and the symptoms exhibited did not seem to necessitate very urgent treatment: tympany was not marked. There were, however, frequent and forceful attempts at swallowing, with subsequent copious ejections of saliva.

I carefully manipulated the visible course of the œsophagus, and located an obstruction in its upper third. This was of unusual size and was fixed transversely. I attempted to move it upwards, but it was absolutely firm.

I expressed the opinion that there was no treatment that was likely to be of service and that the best course would be to have the beast slaughtered. The client replied: "I expected that is what it would amount to, for I have tried

* Case communicated to a meeting of the North of England Division, N.V.M.A., at Newcastle-on-Tyne, December 1st, 1934.

myself to push it down with this, but I can make no impression on it." With these words he picked up a driving whip and looked somewhat disconsolately at its butt end. This piece of information rather startled me—I felt it might be very unwise on my part to do anything after that and I proceeded to tell him how foolish it was to attempt any such procedure for it had not only fixed the obstruction but was also responsible for its transverse position.

It then occurred to me that here was a case on which I might try my surgical skill with some degree of complacency, inasmuch as the cow had already been sentenced to death by mutual understanding.

I thereupon resolved to operate, under local anæsthesia, having made it quite clear to my client, who had already approved, that a successful outcome of my endeavour was only a remote possibility.

The rope was applied, the cow thrown, and secured with hobbles, with her head and neck resting on three bags tightly packed with straw. The head, carrying a strong halter, was secured round one of the manger supports. The owner and his two sons were my assistants.

After clipping the skin and painting it with iodine, an attempt was made with one hand to push the obstruction upwards, so as to get it fairly tight under the skin. This was not easy, as the structures at that part are rather loosely placed and easily moved laterally. I did eventually get it sufficiently poised, and then I made an incision over it. After opening the gullet and removing the obstructing body—a piece of root as large as my fist—I closed the wound with sutures. The operation was accompanied by considerable hæmorrhage, which persisted for a time after the cow had risen from the operation bed.

When the bleeding had subsided somewhat, the cow was walked gently into a loose box. No food of any kind was allowed, the animal being drenched four times a day with gruel, milk, egg and stimulants.

During the first week or so some of this liquid nourishment percolated through the stitches, but we did not despair. The cow was alive and able to stand, although, of course, she was very thin.

Three weeks later, we let her out. She lowered her head, sniffed at the herbage and moved her jaws instinctively, but her sense of taste had vanished for a while, and she had no desire to graze. Before many days had passed, however, she was enjoying the flavour and succulence of the spring grass, and making a valiant attempt to regain her lost condition. Ten weeks later I was happy to see her grazing among the others, apparently not much the worse for her ordeal. Very little disfigurement remained.

Abstracts

[I.—Enzoötic Marasmus: Treatment with Limonite Fractions. Filmer, J. F., and Underwood, E. J. (1934.) *Austral. Vet. J. 10.* 3. 83-87; **II.—Enzoötic Marasmus: Iron Content of Liver, Kidney and Spleen.** Underwood, E. J. (1934.) *Austral. Vet. J. 10.* 87-92.]

1. A previous paper has drawn attention to the similarity between enzoötic marasmus and "bush sickness," "pine" and "nakuruitis" and recorded the excellent results obtained with limonite in the prevention and treatment of the disease. Recent experiments in New Zealand have shown, however, that the disease is not entirely an iron deficiency.

Limonite was extracted with weak HCl (0·125 N) and the extract dried and fed to a calf. This extract was found to contain less than 1 per cent. of the iron in the compound, but when fed to the calf enabled it to gain weight at the rate of 2·53 lb. per day for a period of three months; previously it had been gaining 0·63 lb. per day. While under treatment the red blood corpuscles fell from 6·0 to 5·4 millions per c.mm. and the hæmoglobin (Hb) content rose from 9·5 to 11·0 grammes per 100 c.c.

A second calf was at the same time fed on the residue containing 99 per cent. of the iron, and it lost 0·38 lb. a day for five weeks and its Hb content remained at 8·5 grammes per 100 c.c. On being given whole limonite its weight gradually increased; first 0·13 lb., then 1·43 lb. a day, and the Hb content rose to 10·5 grammes per 100 c.c.

The extract was then divided into an iron fraction and an "iron free" fraction.

The iron fraction was given to a badly affected calf but this died two days later.

The "iron free" fraction, when given to another affected calf, caused the weight to increase by 1·90 lb. a day and also caused an increase in weight in three sheep previously losing weight.

Further work is being done in dividing up the "iron free" fraction into four parts containing the iron, copper and zinc groups and a fourth group of the remaining substances. If necessary the elements from these groups will be tried individually.

II. Iron analyses of the liver, spleen and kidneys of affected sheep and calves are compared with those of the liver and spleen of normal sheep and a calf. They show that affected animals have a much higher percentage of iron in their organs in comparison with the normal ones, thus showing that there is no iron deficiency, but an absence from the diet of some factor necessary for the utilisation of iron for growth and hæmoglobin production.

B. B-J.

[**Calf Losses due to Iodine Deficiency.** Mills, R. H. (1934.) *J. Amer. Vet. Med. Ass.* *85.* 5.]

An investigation into the causes of premature calf losses was made in North California in 1932. Several herds on blood examination were found affected with Bang's disease, while others proved to be entirely free. In one herd free of contagious abortion the calves which were born in the autumn arrived practically at full time, but showed thyroid enlargement when several months old. The spring calves were invariably premature, weak and small; many showed evidence of goitre and a few were hairless. Most of the calves were alive at birth and if carefully looked after survived, but were stunted in growth. *Post-mortem* examination of a calf revealed enlargement of the thyroid and infiltration of the subcutaneous tissue and muscles of the neck. The remainder of the organs were normal. The cows themselves, following calving, frequently retained the membranes and developed metritis with a high mortality.

The feeding of iodised mineral salt was extensively undertaken in the area with excellent results. When visited in March, 1934, none of the former troubles had been encountered even during the usual "bad" months of January, February and March.

D. W. M.

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[**Chronic Necrotic Ruminitis.** (Trans title.) Lazlo, F. (1934.) *Deutls. tierärztl. Wschr.* Feb. 24. 119-120.]

A brief report of a case of chronic ruminitis with necrosis and ulceration in a sucking calf. The anatomical and histological appearances are described and are of little importance. Such conditions are very seldom observed, the mucous membrane of the rumen being relatively immune from inflammatory conditions of any variety owing to the thick stratified keratinised nature of the epithelium. Similar cases described by other authors have been said to be caused by digestive disturbances.

J. R. M. I.

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[**A Case of Adenoma of the Kidney of the Horse.** (Trans title.) Struck, M. (1934.) *Deuts. tierärztl. Wschr.* Jan. 13. 21-22.]

Benign adenomas of the kidney are not uncommon in the lower animals and many have their origin undoubtedly in pre-existing cystic conditions of the tubules, and are referred to as cystadenomas. This condition is of fairly frequent occurrence in sclerotic kidneys of the dog.

The case described by the above author is noteworthy. A malignant growth occurred in the right kidney of an 18-year-old horse. There was extensive regional invasion of the peritoneum and greater omentum and there were also multiple metastases in the liver and lungs. Histologically the tumour showed the features of an adenoma of a papillary type, well-marked alveoli lined by a cubical epithelium being present in both the primary and secondary growths.

J. R. M. I.

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[**Primary Carcinoma of the Kidney, with Vertebral Metastases, in a Dog.** Valade, M. P. (1934.) *Bull. Acad. vét. France.* vii. 288-294.]

The subject was an eight-year-old German sheep dog which had been treated in the previous March for cystitis. Symptoms recurred on April 11th and consisted of inappetence, hesitating gait and frequent and painful passage of hæmorrhagic urine. On April 20th paralysis of the left hind leg commenced and gradually spread to the opposite limb, and finally the animal dragged himself along on his hind quarters. He died on April 24th. *Post-mortem* examination revealed a tumour of the left kidney with pulmonary and vertebral metastases and also lesions of acute cystitis. The primary tumour was the size of an orange and was situated in the middle of the kidney, forming a prominent bulge which completely deformed the contour of the organ. On section the neoplasm appeared well defined and occupied almost two-thirds of the kidney; it was greyish-red in colour, fairly soft and had a central cystic necrotic buff-coloured area. The pulmonary metastases were three in number, the largest being the size of a small orange. In the vertebral column there were two metastases, the smaller being in the second sacral vertebra and the larger at the level of the second lumbar vertebra. The latter tumour consisted of a lobulated mass, the upper lobe (the size of a pigeon's egg) projecting between the transverse and accessory processes, the lower lobe being between the transverse processes. On section the body of the vertebra was largely destroyed, the growth almost entirely obstructing the canal and thus producing compression of the cord.

Histological examination of the tumour revealed a typical carcinoma, the tubules of which resembled in size the uriniferous tubules. The metastases reproduced faithfully the structure of the primary tumour.

While medical literature contains numerous cases of vertebral metastases, very few are to be found in veterinary literature, possibly because such lesions are not searched for thoroughly enough. The present case is illustrated with eight drawings and photomicrographs and the author, while admitting the difficulty of diagnosing such cases, observes that the presence of blood in the urine should suggest the possibility of carcinoma of the kidney.

A. B. O.

[**Tumours of the Peri-anal Region of the Dog.** Valade, M. P. (1934.) *Rec. Méd. vét. 110.* 7. 385-390.]

Seven neoplasms of the anal region surgically removed from dogs at the Alfort School were classified as follows:—

3 squamous-celled carcinomata.
1 adenoma } of sebaceous
3 adeno-carcinomata } glands.

Several authorities are of opinion that neoplasms of the anal glands themselves are rare.

Sebaceous adeno-carcinomata frequently lie between the superior commissure of the anus and the base of the tail. Not uncommonly several tumours, varying in size from that of a pea to that of a nut, occur simultaneously around the anus. They have a tendency to ulcerate and bleed.

Excision presents no difficulty, but recurrences are common, probably on account of fragments being left behind which proliferate. Metastases have not been observed by the author and it would appear that adeno-carcinomata of the anal region are relatively benign.

The histological appearances of the adeno-carcinomata vary in different parts of the same tumour.

Under the low power, it is seen that the cells are arranged in no well-marked order, in thick bundles or in irregular masses. Spaces of varying size lie here and there. They contain a sero-sebaceous material which is stained pink by eosin. Stroma is poorly developed.

Under the high power three arrangements of the cells are seen: (1) in which the cells are grouped in the forms of lobules, the peripheral cells of which are closely-packed and small, with rounded nuclei and deeply staining basophilic protoplasm, while the central cells are large, clear and vacuolated; (2) in which the cells are irregular in arrangement, size and shape, and are frequently double-nucleated; (3) in which the cells are flattened and overlap, giving the appearance of a cut onion, and resembling the cell nests of a squamous-cell carcinoma. Keratinisation, however, does not occur.

Blood vessels are numerous, and vary in size from capillaries of very narrow calibre to relatively voluminous spaces.

Pathogenesis.—Predisposing causes are: (1) richness of the anal region in sebaceous glands; (2) slight, repeated injuries due to defæcation and to trauma resulting from pruritus ani.

E. W. A.

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[**Experimental Studies on Venereal Sarcomata of the Dog.** Stubbs, E. L., Furth, J. (1934.) *Amer. J. Path. 10.* 275-286. (One table. 15 figs. on two plates. 19 refs.)]

These tumours occur as single or multiple, nodular or papillary growths on the corona penis or the vaginal mucosa. Occasionally the growths may spread to regional lymph nodes. They are readily transmissible by sexual contact, or by rubbing the tumour into scarified mucous membrane or by inoculation of emulsified tumour material. The disease has been reported from Russia, U.S.A., France, Germany and England but there is no accurate information available regarding its incidence. The exact nature of the tumour is unknown and has been described by some workers as carcinoma and by others as lymphosarcoma. The experiments of the above workers indicate that the tumour can only be transmitted by viable cells. In spontaneous cases the spread must therefore occur as a result of implantation and the name of "infectious sarcomata" is obviously incorrect. The type and origin of the cells concerned is unknown, the evidence suggesting that the cells are lymphocytes being incomplete.

J. R. M. I.

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[**Primary Mesotheliobastomata of the Bovine Omentum.** Jungheer, E. (1934.) *J. Amer. Vet. Med. Ass. 37.* 907-914. (7 figs. 10 refs.)]

As has been mentioned in a previous abstract, primary tumours of the serous membranes are rare and considerable controversy exists as to the exact nature of such tumours.

This article is a case report of an endothelioma in a 14-months-old Holstein heifer, originating in the greater omentum with metastases in the lungs. The animal had been suffering for some time from chronic indigestion and died within 30 minutes of the onset of acute illness. A considerable amount of blood-stained fluid was present in the abdominal cavity; the parietal surface of the greater omentum was studded with multiple growths and metastases were present in the lungs.

J. R. M. I.

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[**Familial Incidence of Lymphocytoma in Three Generations of the Domestic Fowl.** Fenstermacher, R. (1934.) *J. Amer. Vet. Med. Ass. 37.* 863-877. (five tables. 13 refs.)]

According to Feldman and Olson, lymphocytoma of chickens is a malignant tumour the type cell of which is the undifferentiated lymphocyte. The lesions consist usually of pinkish-grey to greyish-white diffuse masses or nodules in the various organs, the viscera of the abdominal cavity being the most frequently affected. The tumours have an extravascular relationship, leukæmic changes in the blood do not occur and the disease is not transmissible. Reference should be made to the abstract of Dobberstein given on page 20 of this volume of *The Veterinary Record* (January 5th), as this disease is yet another of that large group affecting the blood-forming organs. This condition

must be differentiated from fowl paralysis in which, although growths and infiltrations of large mononuclears occur, the most severe lesions are found in the peripheral nerves and nerve roots.

The authors conducted experiments over a period of three years in a flock of White Leghorns and Plymouth Rocks in which a number of birds with lymphocytoma was present. This was done in order to obtain data regarding the incidence of the disease in dams and their progeny.

Fifteen per cent. of the progeny raised developed lymphocytoma. The general pathology was in general similar to that described. The incidence was materially reduced in the second generation as compared to the first. It was not possible to transmit the disease either by artificial inoculation or by contact, although they concluded that the evidence suggests transmission through the eggs, as already indicated by Warrack and Dalling (1932) in this country. No bird developed iritis and only one bird paralysis, the latter on *post-mortem* examination showing "round cell" infiltration(?) of the femoral nerves. No data were obtained which showed that lymphocytoma and fowl paralysis were manifestations of the same disease. It is interesting to note that during the course of the experiments fowl paralysis is recorded as being rampant a hundred yards away from the hens under experiment.

J. R. M. I.

RELATIVE NUTRITIVE MERITS OF RAW AND PASTEURISED MILK

The Milk Marketing Board will shortly begin an extensive and prolonged investigation to determine scientifically the nutritive value of milk and, more particularly, the relative merits, as food, of raw and pasteurised milk. The investigation will be made in selected schools in industrial areas throughout the country.

The investigation is being undertaken on the advice of the Milk Nutrition Committee (of which Lord Astor is chairman) which was set up to advise the Board on questions affecting the milk-in-schools scheme. But the whole matter has been precipitated by the action of the Ministry of Health in issuing to medical officers of health a recommendaton that pasteurised milk should be authorised for use of schools in preference to ordinary raw milk. The Board will employ a number of doctors to carry out the tests in the schools. The purpose of the inquiry will be to discover the quantity of milk which can most advantageously be drunk by school children of various ages; to determine the relative nutritive values of raw and pasteurised milk; and to discover the general nutritional value of milk.

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Lord Beatty has consented to become president of the International Horse Show, which is to be held at Olympia from June 20th to June 29th inclusive. The members' club, introduced for the first time last year, will be continued.

Reports

BIHAR AND ORISSA

Annual Report of the Civil Veterinary Department for the Year 1933-34*

The report is submitted to Government by Mr. R. T. Davis, I.V.S., Officiating Director, and includes a map of the Province showing the prevalence of cattle disease, a photograph of the office of the Civil Veterinary Department, North Bihar Range, twelve tables, and four statements.

Staff.—Major Riley was in charge of the department throughout the year under report. There was no change in the personnel of the superior staff. The subordinate establishment received one recruit.

Disease.—There was a slight increase in the number of outbreaks reported, but the actual mortality was less than in the two previous years and no widespread epidemic was brought to notice. Foot-and-mouth disease was responsible for the increase in the number of outbreaks. The number of cattle protected by preventive inoculation increased from 164,232 in the previous year to 189,417. This increase in number was mainly due to the fact that the cost of serum was reduced and to the extended application of the goat virus method, from which encouraging results were reported.

The number of veterinary hospitals remained stationary, but there was a large increase in the number of patients. More hospitals and more field veterinary dispensaries are admittedly required. Their establishment depends upon local bodies and in some districts these have been badly affected financially by the earthquake disaster. There was a satisfactory increase in the number of castrations performed.

Breeding Operations.—The Patna cattle breeding and dairy farm appears to have been managed with efficiency and success. The average milk yield per cow requires to be improved. During the year ten bulls were distributed or sold. No horse or pony stallions were maintained.

The fairs and shows in the Province were attended by the veterinary staff.

Patna Veterinary College.—Mr. Davis was in charge throughout the year except for a short period of leave when Mr. Malkani officiated. There was a satisfactory increase in the number of admissions of private students, but there is scope for a larger number. Some damage was done to the buildings by the earthquake and caused some dislocation of work. Some useful work was conducted in the Research Laboratory

*Superintendent, Government Printing, Bihar and Orrisa, Patna, India. Price Rs. 1-3-0.

of the College under Mr. Malkani. Special attention is being paid to the study of kumri and to further investigation of goat virus for inoculation against rinderpest. Mr. Sahai, the Veterinary Disease Investigation Officer, worked in the Research Laboratory and, in addition, made systematic tours, inquiring particularly into the distribution of nasal granuloma and stringhalt. He published a paper on the drug treatment of bovine contagious abortion.

General.—The disastrous earthquake of January 15th, 1934, is reported to have been responsible for over 4,000 casualties amongst cattle. In North Bihar almost all of the veterinary hospital and dispensary buildings suffered.

The prompt relief measures organised by the Government, by the Society for the Prevention of Cruelty to Animals and by the Bihar Earthquake Distressed Cattle Relief Committee, assisted in averting the more serious consequences. The entire veterinary staff in North Bihar was placed at the disposal of the local officers to assist in relief measures.

Major Riley receives the thanks of Government for his efficient administration and acknowledgment is made to Mr. Davis for the report.

G. K. W.

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MADRAS

Annual Administration Report of the Civil Veterinary Department for the Year 1933-34*

The report is submitted to Government by Mr. P. T. Saunders, the Director of Veterinary Services, who was, however, on leave for part of the year, Mr. T. J. Hurley holding temporary charge of the Department during that period. It is a comprehensive and interesting report, though rather long.

Staff.—In addition to the Director, twelve District Veterinary Officers were employed for district work. Eight officers constituted the staff at the Madras Veterinary College, each having an assistant. The Superintendent of the Serum Institute and the Veterinary Diseases Investigation Officer are additional posts. The total number of veterinary assistant surgeons employed was 268—an increase of one over the previous year.

Madras Veterinary College.—Under Government orders the number of students admitted from the Presidency has been restricted each year to 30. One student was admitted from the Federated Malay States. The revised course of study is now in full force and received the approval of the Board of Examiners. A refresher course extending over six months was held. The University of Madras has framed regulations for the institution of a B.Sc. (veterinary) degree and the question of affiliation is under consideration.

A large amount of work was conducted in the Laboratory of the College under Professor V. Krishamurti Ayyar. The number of specimens received and examined during the year amounted to 4,355 exclusive of laboratory routine. In the Parasitological Section the existence of *Babesia motasi* in sheep and *Plasmodium bubolis* in buffaloes was detected. Good work appears to have been done in the Clinical Laboratory and the recently opened Biochemistry Laboratory.

Serum Institute.—A large amount of serum was issued and very useful investigation work was conducted, much of it being of an interesting and progressive nature.

Investigation and Research.—The Veterinary Diseases Investigation Officer continued the work of the Special Rinderpest Officer in the experimental use of goat virus in rinderpest immunisation with useful results and further trials of this method are now being carried out by the District Veterinary Officers.

He has now taken up blackquarter as a subject for further investigation. This disease, as it occurs in the Presidency, had already received considerable attention in the College Laboratory with interesting results denoting the need for further experimental work.

A case of tuberculosis was detected in an elephant and further study is being made to determine the exact nature and character of the strain.

The report states rather fully the investigation work conducted with pseudo-fowl pest, contagious pleuro-pneumonia of goats, paraplegia in horses, nasal schistosomiasis in cattle, bovine trypanosomiasis and schistosomiasis in pigs.

Some preliminary tests were made with urine hormone (Zondek and Aschheim test).

Some interesting anatomical deviations were found and recorded in the Anatomical Section.

Disease.—The general health of the cattle during the year was on the whole satisfactory, there being a reduction on the previous year in the mortality from contagious disease. There was a fall in the number of deaths from rinderpest and an increase in the number from hæmorrhagic septicæmia. No cases of glanders were confirmed. Twenty-six cases of surra in equines were detected. Naganol (Bayer 205) was found to be effective treatment except in the last stages of the disease.

There was no increase in the number of hospitals and dispensaries or in the number of touring staff during the year, but there was a gratifying increase in the attendance and in the number of castrations performed.

*Superintendent, Government Press, Madras. Price 10 annas.

General.—Propaganda work was continued as in previous years and the number of magic lanterns for use in the districts was increased. Each district veterinary officer is now supplied with one. There is a proposal to supply the Department with a motor exhibition van.

It is recorded by the Government of Madras that "it is clear that the work of the officers of the department is receiving more and more appreciation from the general public."

G. K. W.

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CENTRAL PROVINCES AND BERAR

Annual Report on the Working of the Civil Veterinary Department for the Year ending March 31st, 1934*

The report is submitted to Government by Major R. F. Stirling, Director of Veterinary Services, who was on leave until July 12th, 1933. During his absence Rao Bahadur R. V. Pillai, the Deputy Director, officiated.

Staff.—In addition to the Director and Deputy Director there are a number of Assistant Directors (it is not clear in the report how many), one Veterinary Investigation Officer, 13 Veterinary Inspectors and 132 Veterinary Assistant Surgeons.

Disease.—The year was not a healthy one for cattle, there being an increase in the number of outbreaks of contagious disease. Foot-and-mouth disease was particularly rife, and hæmorrhagic septicæmia and blackquarter prevailed generally. The incidence of rinderpest was less severe and it is suggested that this might be due to the increasing confidence shown by the public in preventive inoculation. It must be remembered, however, that this disease is marked by a definite periodicity and that effective control must include legislation. The Government of Central Provinces has now introduced a Cattle Diseases Act with this object in view. There has been a further advance in the use of inoculation against rinderpest with goat virus and encouraging results are reported. The economy of this method is much in its favour.

It is reported that piroplasmosis is now less prevalent, due to the increasing use of trypan blue. The treatment is becoming popular and a very large amount of the solution is now issued to the field workers.

The Veterinary Investigation Officer was occupied in making local enquiries in connection with rinderpest, piroplasmosis, trypanosomiasis, coccidiosis and other internal parasites. He also investigated the occurrence of nasal granuloma in cattle. It is stated that a full report of his work has been sent to the Imperial Council of Agricultural Research.

* Government Printing, C.P., Nagpur, India. Price one rupee.

The number of dispensaries was 103 and an increasing number of cases was treated. The castration of useless bulls is developing.

General.—Propaganda work continued at the various cattle shows and fairs. It is clear that when finances permit there is room for expansion in many directions. The Government records its appreciation of the year's work and the efficient administration of Major Stirling and Rao Bahadur Pillai.

G. K. W.

Reviews

THE FARMER AND STOCK-BREEDER YEAR BOOK AND LIVESTOCK JOURNAL ANNUAL, 1935

As a comprehensive exposition of the many phases of our basic agricultural and live-stock industry, it would be very difficult to equal The Farmer and Stock Breeder Year Book, 1935. The editor and publishers are certainly to be congratulated on the well-planned lay-out of the work, and on the handling of the subject matter by contributors who are experts in their particular spheres. A very special and attractive feature is the "Pedigree Year in Pictures," which in itself makes the book a useful and necessary addition to the libraries of all Agricultural Colleges, Veterinary Colleges, and Research Institutes, as showing to perfection the various breeds and classes of animals.

Taking the articles in detail, the Potato Marketing Scheme, its origin, development, and operation, is very well explained by Captain J. Mollett, the Chairman of the Potato Marketing Board. Though the Scheme is still in its infancy, he has endeavoured to show that by evolutionary methods the structure of successful marketing for the potato crop is being built up without causing any repercussions in the industry, and reforms, which would have been impracticable when the Scheme was launched, may be easily accomplished when the Scheme has been developed on the present lines and within the existing powers available. He adds that there is not the remotest chance of the potato growers of Great Britain electing to return to the old conditions under which they suffered so severely. In the light of experience amendments will be required in order to provide the Board with more power to control the price levels in difficult years. From the point of view of "Potato Growing Practice," Mr. J. C. Wallace raises important issues in relation to the quality of the soil, deep cultivation, underground supply of moisture rather than high rainfall, the advisability of reducing the number of stems per plant, the acceptance of the principle that small

"seed" produces larger potatoes than large seed, the effect of a moderate dressing of farmyard manure supplemented by artificials, particularly potash, of which the best sources are muriate and sulphate.

In an article on "The Future of the Horse, in Commerce, in Hunting, and in the Army," Major-General Sir John Moore discusses the question from the following angles: (*a*) Commerce in relation to Agriculture, (*b*) Economy in working, (*c*) Convenience and adaptability, (*d*) Traffic congestion, (*e*) Encouragement of horse-breeding. He advances statistical proof that horse transport carries economic advantage over motor transport, and that for the common work on farms horses are cheaper than tractors. Traffic congestion, and traffic blocks, in his opinion, are entirely due to the large volume of motor vehicles of all kinds, and he quotes instances of delays which he has experienced in London. He pleads for the encouragement of horse-breeding in general, the prohibition of foreign importations, and the adoption of the principle that Great Britain can produce all the horses required for agriculture, commerce, hunting and the Army. He regrets that Army Authorities are considering the mechanisation of the Royal Horse Artillery, which he affirms is a mistaken policy, but he considers that as long as the British Army endures there will always be the necessity for Cavalry Regiments.

In an article on "The Prevention of Animal Diseases, Some Elementary Points in the Control of Contagious and Infectious Maladies" by one who unfortunately abbreviates his professional designation to "VET" (his name is not specifically stated) the situation is discussed from the point of view of disease-producing germs, the resistance of spores to external influences, and the spread by manure and discharges from diseased animals of such common diseases as tuberculosis, Johne's disease, contagious abortion, and mastitis. Point is also made of the desirability of isolation of sick and the testing of purchased animals, sufficiency of water supply, housing, and disinfection thoroughly carried out by methods suggested in the article. Allusion is also made to nutrition and accessory food factors, especially vitamins and minerals, in the prevention of diseased conditions.

An article on "Scandinavian Type Pig Houses," by E. W. Brooks, forms useful reading. The design is increasing in popularity in Great Britain and has the merits of economy and labour saving. Sound advice is given as to site, a good floor, building materials, window space, construction of pens, the dunging passage and ventilation.

Dealing with "Farm Poultry Fattening," Mr. H. Howes discusses suitable methods when complete equipment is lacking to meet situations where farm flocks have increased several hundred per cent. up to two and even five thousand birds. He advocates the open run method which is quite a common one amongst farmers, and which with the right class of fowl, gives very satisfactory results. He, however, affirms that with open runs some form of shelter is necessary, and he recommends the ordinary Sussex ark or other portable house being used for that purpose, preferring groups of 20 to 30 birds instead of 50 or more, and locating different groups according to age. Where arks are not available, use might be made of disused buildings or sheds often found on farms. As regards feeding in runs, the coop system is advised, and only good-conditioned birds should be cooped. Birds which do not appear to be healthy shou'd be avoided as this type cannot possibly leave any profit. The best age for fattening is at or about the twelfth week. For the run he advises a mash made of equal weights of maize meal, weatings, and Sussex ground oats, adding 5 per cent. of dried skim milk, and 3 per cent. of meat or white fish meal. He adds that where regular quantities of skim or separated milk are available, there is no need to use dried skimmed milk. With regard to culled hens, there are times when a fattening ration can be used to advantage on hens and culled pullets. Good-conditioned birds carry plenty of breast meat, and show a streak of fat on each side of the breast.

Mr. H. R. Davidson contributes a well reasoned article on "Producing Grade 'A' Pigs, and Points in Feeding and Management that influence Carcase Results." He considers that thickness of lean meat and a small amount of fat are associated with rapid growth in the early stages. A good milk supply from the sow is essential which means that her feeding and management must be correct to begin with. Young pigs must be taught to eat solid food as soon as possible. Exercise and exposure to sunlight and fresh air are important factors, as is a good supply of fresh green food. After about four months they can be taken inside for fattening. He prefers dry feeding for getting good carcases, as such does not distend the abdomen as much as slopfeeding. He adds that there is no royal road to the production of grade "A" baconers, which can only be achieved by constant personal attention to all details.

Very instructive articles relate to "Cattle in 1934," "Horses in 1934," "The Sheep Year," "Pig Progress in 1934," and sales in relation thereto. Typical rations for all classes of livestock are all suitably and adequately dealt with, and a complete schedule of import duties on agricultural products and requisites is incorporated in the publication. Very instructive tables of the Composition of Feeding Stuffs, with

digestible nutrients per cent. are also embodied.

The Year Book as a whole constitutes a valuable *vade mecum* for the agriculturist and stock-breeder, and purchase is highly recommended. The price per copy is 2s. 6d. paper cover, and 3s. 6d. stout cardboard cover. Copies may be obtained from the publishers Messrs. Macdonald & Martin, Ltd., Dorset House, Stamford Street, London, S.E.1, or through any bookseller.

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[**Sexing Day-old Chicks.** W. P. Blount. (1934.) p. 54. 28 illustrations. Published by the Poultry World, Ltd., London. (Price 2s. 6d. net.)]

The author has written a very readable and instructive work for all persons interested in the detection of the sex of a chick at birth.

He refers to the original work on this subject which was carried out by certain Japanese veterinary and agricultural professors.

One chapter is devoted to the sexual structure of chicks and the anatomy of the sexual organs.

Excellent large photographs are included, which illustrate the handling of the chickens in the technique of sex determination.

The work has been very well produced, the printing and paper being of good quality, and the photographic illustrations being excellent.

POULTRY INDUSTRY IN 1934

In his review of the poultry industry for the year, Sir Edward Brown points out that for the first time since the War there was last year a check to the rate of increase in the number of fowls and ducks in the country, on account of the uncertainty felt by producers. The total decline in Great Britain and Northern Ireland is estimated at 1·4 per cent. The value of poultry production decreased by 4·3 per cent., the total value being estimated at £31,543,000. Comparison with the value of cereal crops last year, estimated at £28,863,000, emphasises the importance of poultry production in the economy of farming. Sir Edward Brown remarks on the heavy losses on poultry farms as a result of disease and lack of stamina, and suggests that this experience calls for a return to more natural systems of management and feeding.

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MR. HEPBURN ON THE UTILITY HORSE

Addressing a large company of agricultural students viewing the noted stud of Clydesdales at Kennerty, near Aberdeen, Mr. W. Hepburn, M.R.C.V.S., said a tied-in hoof-head was one of the worst faults in horses. If a horse had the right foot it did not need fancy shoes. In the show-yards there was far too much stress put upon the movement of a horse. It was the utility horse that was wanted: never mind if a horse "dished" its legs a little, so long as it had other good points. Horses should be shod flat; they could not have a healthy frog unless it came into contact with the ground. They were not now getting the same stamina in the horses that they used to get years ago. That was reflected in the appalling death-rate among young horses and foals. He believed this to be due largely to inbreeding.

N.V.M.A. Divisional Reports

SOUTHERN COUNTIES V.M.A.*

MEETING AT SOUTHAMPTON

The December meeting of the above Division was held at the South Western Hotel, Southampton, on December 7th, 1934, when Dr. A. W. Stableforth, D.Sc., M.R.C.V.S., D.V.S.M., presented an interesting paper on "The Rearing of Calves Free from the Major Diseases of Cattle."

The President occupied the chair, the others present being Major J. Facer, Major E. S. Martin, Major J. Stewart Wood, Messrs. N. S. Barron, H. S. Caldwell, G. N. Gould, A. E. Roberts and J. B. White, together with Miss Shedlock as a visitor.

The minutes of the previous meeting, having been published in *The Veterinary Record*, were taken as read and were confirmed.

Obituary.—The President then took the opportunity to refer to the recent death of Mr. Walter Burt, who was for many years a member and for a period a President of the Society.

The meeting stood in silent tribute to his memory. The Hon. Secretary intimated that he had already sent a letter of condolence to Mr. Burt's sister and this action was approved.

Correspondence. — The Hon. Secretary announced the receipt of (1) Letters of apology for absence from Miss Cust, Sir Frederick Hobday, Dr. Sheather, Messrs. F. Beckett, E. Harding, J. Ripley and H. C. Rockett; (2) A copy of the Articles of Association of the N.V.M.A., which he had with him if anyone desired to see it.

Report of Delegate to the Royal Sanitary Institute Congress.—Mr. N. S. Barron then gave an interesting account of the proceedings of the above Congress, embodying a list of the various sections with their respective papers. These covered a very wide range of subjects. Dealing in greater detail with the papers of the Veterinary Section, Mr. Barron summarised the following: (1) "Meat Inspection Administration," by Mr. L. B. A. Grace, M.R.C.V.S., D.V.S.M.; (2) "The Veterinary Surgeon and the Milk and Dairies Act and the Tuberculosis Order," by Capt. J. R. Barker, M.R.C.V.S., D.V.H.; (3) "A Plea for Intensive Action against Bovine Tuberculosis," by Major Stevens, M.R.C.V.S.

Mr. Barron then thanked the members for electing him to represent them at the Congress.

The Hon. Secretary proposed a hearty vote of thanks to Mr. Barron for all the trouble he had taken on their behalf. Major Martin seconded this, remarking that the Society was fortunate in having such an able representative

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at this Congress. The vote was carried unanimously.

Place of next Meeting.—Mr. G. N. Gould suggested that the members might like to pay a visit to the Bollhayes herd of Jerseys at Dunwood, Romsey. Here the members could see a farm where the herd and farm were managed on scientific lines, and where they might learn a great deal concerning rationing and mineral feeding.

The President supported the proposal, which was cordially approved, but it was agreed that it would be more suitable to try and fix a meeting there at the end of April or the beginning of May.

In the meantime, it was decided to hold the Annual Meeting at Salisbury early in March, when Major Dunkin would give a paper.

Clinical Matters.

Major Martin said he had two photographs of a paralysed dog, which he thought might be of interest. The first showed a curious frog-like attitude with lateral extension of the hind limbs when sitting down, and the second demonstrated the adaptability of the canine patient, which by lowering its head was able to progress by means of its two forelegs, the hind toes barely touching the ground.

There was no history of causal illness in the case, which was probably brought about by concussion or shock.

Major Martin said the patient recovered within a week with the aid of measures to relieve the constipation which usually accompanied such a condition.

The Hon. Secretary exhibited some cystic calculi which had been removed from dogs. The first was from a young Dalmatian dog and consisted of a single large stone with a roughened exterior. When this dog was operated on, silk suture had been used and by accident had penetrated to the inner side of the bladder.

About two months later the dog was again troubled with calculi, and was this time destroyed. On *post-mortem* a string of calculi were found grown on to the silk suture, which he showed to the meeting. Since then he had always used catgut for the bladder.

The second case was that of a bitch which had been successfully operated on for calculi; these consisted of one large and one small stone, both light in colour and with a very rough exterior. In this case it was eighteen months before they recurred, when she was again operated upon.

What had rather surprised him in this bitch was the totally different character of the stones, there being at the second operation four or five of roughly the same size and all having in turn four or five smooth polished facets. The calculi were also of a darker colour than formerly.

That was four months ago and so far the bitch was in good health.

This concluded the clinical section of the meeting.

Paper.—The President then called upon Dr. Stableforth to present his paper. [We reproduce Dr. Stableforth's paper, and a report of the discussion following its presentation, at the commencement of this issue.—Ed., *V.R.*]

At the conclusion of the discussion the President expressed the thanks of the members to Dr. Stableforth for having come down and given them such an interesting paper and also to Mr. Caldwell for having opened the discussion.

The vote of thanks was seconded by Mr. Gould and carried with applause.

The company subsequently took tea together, and the President expressed thanks to Messrs. Edie, Facer and Gould for their kind hospitality.

J. B. White, *Hon. Secretary.*

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NORTH OF ENGLAND V.M.A.*

OFFICERS ELECTED AT NEWCASTLE-ON-TYNE

A meeting of this Division was held at Armstrong College, Newcastle-on-Tyne, on Saturday, December 1st, 1934, when the chair was occupied by the President, Mr. A. C. Forbes, and the attendance book was signed by the following: Messrs. J. J. McDowall, T. R. Jarvie, F. Pickering, A. L. Batholomew, H. S. Elphick, W. A. Doughty, G. M. G. Oliver, D. Starkey, E. R. Callender, H. P. Lightfoot, J. W. Rider, F. Christopher, T. M. Mitchell, T. Wilkinson and J. R. Rider, Hon. Secretary. Mr. E. McAulty was present as a visitor. Apologies for absence were received from several members, among them being Sir Frederick Hobday, Dr. O. Charnock Bradley, Messrs. W. J. Young, C. Elphick, W. L. Stewart, J. H. Taylor and C. G. Hill.

The minutes of the preceding meeting, having been printed, were taken as read and signed as correct.

Correspondence.—A letter was received from Mr. J. Stewart, tendering his resignation on transfer to Glasgow. Mr. Stewart's resignation was received with regret.

Council Report.—The report of the Council was received and adopted on the proposition of Mr. Pickering, seconded by Mr. T. M. Mitchell.

Reports by Delegates to Outside Bodies

Newcastle-on-Tyne Branch R.S.P.C.A.—Mr. H. S. Elphick submitted his report, in the following terms:—

"I have pleasure in submitting my report of

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work done in conjunction with the R.S.P.C.A. at the Clinic in Vine Lane.

Dogs	2,385
Cats	419
Ponies	51
Cage birds	6
Tortoises	4
Rabbits	4
Ponies (at Surgery)	17
Dogs and Cats (at Surgery) ...	61
Fowls	2
	2,949

"Thirty-eight major operations, including inguinal hernia, mammary and other tumours, hæmatomata of the ear, broken legs, enucleation of the eyeball, etc., were performed under general anæsthesia. Fifty-four minor operations were performed under local anæsthesia.

"The total receipts came to £74 16s., donations being £43 14s. and moneys placed in the Clinic collecting box £31 2s.

"The cost of drugs, dressings, etc., came to £63 2s., but there is an overlap from the year before included in this sum—I think of about £18—which, if deducted, makes the expenditure about £45.

"There is a slight decrease in the number of animals but this can be accounted for by the fact that my brother could not give as much time to the work for the ten weeks I was ill and some people took their dogs and cats away again rather than wait."

Sunderland R.S.P.C.A.—Mr. T. M. Mitchell presented his account of the year's work at the Sunderland Dispensary. He said that the total number of animals receiving attention during the year was 1,084. Included in this number were 768 dogs and 290 cats. The finances of the Clinic were in a healthy condition. Total receipts were approximately £33, of which £20 was received in the collecting box, while the cost of drugs, etc., amounted to approximately £15. It was clear, said Mr. Mitchell, that the cash received in the collecting box would cover the overhead charges for the current year. Two veterinary students had taken advantage of the Clinic during vacations. They had been able to gain some experience of the work, and their help had been most useful.

Management Committee of the Alan Duke of Northumberland Memorial Fund.—In the absence of Mr. C. Elphick, the Hon. Secretary read a report of the proceedings during the year.

"Two meetings of the Management Committee of the above Fund have taken place this year—May and November.

"In the near future, and it is hoped this year, a pamphlet embodying the views on 'sheep pining' will be issued. Apparently, so far as research has been able to disclose, two factors are seemingly at work in the causation of this trouble, *viz.* (1) internal parasites and (2) some nutritional factor.

"During the coming year (1935) a self-contained experiment dealing with tick-borne fever as affecting the flocks in the College Valley, Wooler, is to be taken in hand. The means whereby the eradication of ticks can be economically and quickly carried out will constitute a very interesting piece of the work, which, if successful, will redound to the credit of the workers concerned.

"As a member of the Management Committee, I feel that a vote of thanks to Mr. Lyle Stewart for the valuable work he has so far carried through should be accorded to him from the N.E.V.M.A."

In amplification of Mr. Elphick's report, the Hon. Secretary said that he wished to associate himself with Mr. Elphick's remarks. It seemed to him that the proposed investigation into the occurrence of ticks in the flocks of the College Valley was deserving of their most cordial support. It was a self-contained piece of work, which might lead to results of a practical nature within a reasonable time. A satisfactory conclusion to this investigation might well be the means to produce further financial support for the work of the Committee.

N.V.M.A.—The Hon. Secretary gave a brief account of the work of the N.V.M.A. during the year.

The various reports were received and adopted, and the reporters thanked for their services, on the motion of Mr. Wilkinson, seconded by Mr. Doughty.

Election of Officers for the Year 1935

The President said the Council had given serious and careful thought to this subject. Owing to the difficulty created by the inability of Mr. Pickering to accept the office of President, the Council made a recommendation which he felt sure would meet with their approval, but before doing so they had consulted the Rules of the Association and found that there was nothing to prevent the adoption of their proposal.

The recommendation of the Council was, that for the coming year, the offices of *President and Honorary Secretary and Treasurer* should be held by Mr. J. R. Rider.

The further recommendations of the Council were as follows:—

Senior Vice-President.—Mr. A. C. Forbes.

Junior Vice-President.—Mr. T. R. Jarvie.

Hon. Auditors.—Messrs. T. M. Mitchell and W. L. Stewart.

The recommendations of the Council were approved, and the motion for the election of officers, as stated, was carried unanimously.

Proceeding, the President said that Mr. Jarvie's acceptance of office created an additional vacancy in the Council, he therefore asked for nominations for three members of Council, two to serve for the normal term of three years, and one in place of Mr. Jarvie, for one year. A ballot was held, and the President declared the following duly elected: for three years—Messrs. Christopher and J. W. Rider; for one year—Mr. D. Starkey.

Motion by Mr. Mitchell.—Mr. Mitchell then moved the motion standing in his name: "That the fees for the Clinical Examination of Grade 'A' herds be further discussed." In moving, Mr. Mitchell said he was firmly convinced that

an error had been made at the preceding meeting, when the Council Report, containing a recommendation on this subject, had been adopted. It was his opinion that the fee then agreed to was excessive for an examination carried out four times per year, and moreover, usually carried out in the ordinary course of practice. Mr. Mitchell pointed out that it was important not to discourage the grading up of herds by charging fees which, in the case of large herds, appeared to be excessive. While he wished to hear the views of other members, he hoped the meeting would accept his point of view. If that were so, the effect would be to rescind the latter part of the previous Council Report dealing with fees for the Clinical Examination of Grade "A" herds.

Mr. Pickering seconded Mr. Mitchell's proposal.

Mr. Jarvie expressed the view that no change should be made in the Report. This was supported by Mr. H. S. Elphick. A lengthy discussion ensued, and on the motion being put to the meeting the President gave his casting vote in favour of Mr. Mitchell's proposition.

Mr. McDowall then proposed "That the fees for the Clinical Examination of Grade 'A' herds be left to the discretion of the practitioner concerned." This was put to the meeting and declared carried by seven votes to three.

Discussion on Clinical Cases

Mr. Pickering said he was having a number of cases in foxhounds in which the claws of the outer toes were injured, and the lesion progressed until the bone became carious. It was said that the injury was received as the hounds climbed stone walls. He asked for the opinion of the members both as to cause and treatment.

Mr. Elphick observed that he believed that the cause stated was the correct one. The only treatment was amputation of the affected digit.

Mr. Starkey said the condition was also found in kennels where hounds were kept on "flags" and the animals got the claws fast between the "flags." Amputation was the most satisfactory treatment, since the cases did not usually come under observation sufficiently early for other measures to be adopted.

Mr. H. S. Elphick related the case of an old Spaniel having a large swelling in the nasal region, which occluded both nostrils. It was decided to attempt surgical intervention, and as respiration was only by mouth, nembutal grs.vi was given intra-peritoneally. Dissection showed that the swelling was a malignant tumour affecting both nasal bones. The ethmoid bones were involved, and on one side the growth was traced into the frontal sinus. It was decided that the case was a hopeless one, and the animal was destroyed.

Mr. Callender mentioned the case of a cow, which was apparently healthy, except for a greatly enlarged hind quarter, the swelling extending from the hip to the hock. This animal was seen again six months later, when a sinus was found to be discharging pus. A smear preparation revealed tubercle bacilli and the cow was slaughtered. *Post-mortem* examination proved the swelling to be a greatly enlarged and tuberculous popliteal lymph gland.

Mr. Mitchell referred to an Ayrshire cow which had come under his observation. This animal had passed through a market, and when offered for sale was stated to be recovering from milk fever. Three days later he was called to the cow by the purchaser. A small wound was found in the jugular furrow. Further examination disclosed an extensive swelling from the angle of the jaw to the entrance to the chest, occupying the jugular furrow, and apparently quite loose. This mass was dissected out, ligatured at each end and removed. It was found to contain the occluded jugular vein. Mr. Mitchell expressed the opinion that this condition had been due to an accident in the attempt to give calcium intravenously.

Mr. Mitchell also described the case of a horse which exhibited intermittent lameness, being lame one day and sound the next. Periodically the animal would break out in a sweat, and the respiration would become laboured. When the horse was seen some three days later pneumonia was suspected. The action of the heart was irregular and the pulse about 80. Death occurred after ten days. *Post-mortem* examination showed that the wall of the right auricle was as thin as paper, and the auricle itself was half as big again as the heart. No lesions were found on the auriculo-ventricular valve, but the opinion was expressed that there had been incompetence during life. The lungs were of the consistence of liver, and there was an œdematous layer below the pleura.

Mr. H. S. Elphick thought the hepatised condition of the lung indicated an old pneumonia, and that the heart lesions were secondary.

Mr. Mitchell mentioned a case of worm infestation in a Clydesdale mare which had been treated for sclerostomes some twelve months previously. The fæces remained soft, and when near foaling the mare was treated again. Death occurred later from acute colic. *Post-mortem* examination showed the whole of the double colon to be in fragile condition, with atrophied muscle, while the full length of the mesenteric artery was one large aneurysm. This case was brought forward as an illustration of the great amount of organic change which might occur, and life still persist.

Mr. J. R. Rider reported a case of lymphosarcoma in the horse.

[This case is recorded in the Clinical Section of this issue.—Editor.]

Any Other Business.—Mr. H. S. Elphick nominated Mr. G. Atkinson, Ministry of Agriculture, for membership of the Association.

At the conclusion of the meeting the members joined the ladies at tea.

J. R. Rider, *Hon. Secretary.*

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SOCIETY OF VETERINARY PRACTITIONERS*

MEETING AT DERBY.

A meeting of the Society of Veterinary Practitioners was held at the Midland Hotel, Derby, on Tuesday, December 11th, with the President (Capt. O. V. Gunning) in the chair.

Nominations.—The minutes of the previous meeting having been confirmed, nominations for membership were invited.

Mr. Watson (Bradford) nominated Mr. Wm. Crawford, M.R.C.V.S., of Leeds; and the Hon. Secretary (Mr. H. W. Steele-Bodger) nominated Mr. A. J. James, M.R.C.V.S., of Peterborough.

New Members.—The following, nominated at the previous meeting, were now duly elected members of the Society: Messrs. P. Abson, Nottingham; J. R. Barker, Hereford; Miss E. A. R. Burnett, Calderbridge; Messrs. J. C. Deville, Uttoxeter; R. F. Hall, Tamworth; H. Tudor Hughes, Oswestry; W. F. Jarratt, Farnham; G. S. Peyton, Tunbridge Wells; R. A. Philp, Brentwood; J. Sugden, Southminster; W. Summers, Allendale; G. V. Tyerman, Harrogate; E. Wilkinson, Derby, and S. de M. Woodward, Birmingham.

A Scottish Grievance.—The Hon. Secretary read a letter from Mr. F. J. Taylor, of Rutherglen, complaining that farmers in Lanarkshire were reading into the Milk Order the right to have their herds subjected to the tuberculin test by the whole-time county veterinary officer, at a guinea per herd. He was told, also, that this met with the approval of the local authority.

It was resolved to forward Mr. Taylor's letter to the appropriate committee of the National Veterinary Medical Association, with a view to action being taken.

Control of Biological Products.—In a letter which the Hon. Secretary read from Mr. H. B. Hiles (Worcester) apologising for his absence, reference was made to the possibility of biological products getting into the hands of laymen, and suggesting that the control of such products should be in the hands of the veterinary profession.

Capt. H. W. Dawes thought the matter was of sufficient importance to be referred to the N.V.M.A., stressing that steps should be taken to achieve such control. It would be well to let the "National" know that the general practitioner was alive to his own interests.

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Major F. Chambers (Wolverhampton) said he thought the profession was partly to blame in this matter. They ought to make a point of dealing only with firms which supplied veterinary surgeons and medical men and nobody else. It should be made impossible for any firm to supply laymen.

Mr. Watson observed that it was found that the products of a certain firm, which was supposed only to supply the veterinary or medical profession, were being sold freely along the countryside in Yorkshire.

The resolution was carried.

Council's Report.—The Hon. Secretary presented the report of the Council, which met earlier in the afternoon. This included a draft of the report of the special committee appointed by the N.V.M.A. to consider the report of the Cattle Diseases Committee of the Economic Advisory Council and to frame proposals showing how the services of the veterinary profession can best be utilised in carrying out the recommendations made by the Cattle Diseases Committee.

The Council considered a proposal that the Society should establish area committees, and the opinion was expressed that such committees were undesirable, as not tending to promote continuity of policy. It was thought the better plan was to hold the ordinary meetings of the Society up and down the country.

It was recommended by the Council that the next meeting of the Society be held in Bristol in the latter part of February.

Conditions for the election of members were also submitted for approval.

Capt. Dawes, in moving the adoption of the Council's report and recommendations, said he fully shared the view that the appointment of area committees was undesirable. It would only lead to confusion. He knew something about secretarial work and their Hon. Secretary would be unable to carry on if district committees were doing different things. There was enough apathy shown by the general practitioner already and he was afraid district committees, which could not possibly be given power to act, would only make the position worse.

Mr. Wilkinson (Derby) seconded.

The Hon. Secretary said the objection to area committees was that they might, quite unintentionally, work one against the other, which was not going to be for the benefit of the Society.

The Council's report was formally adopted.

Address by Captain J. R. Barker

Capt. J. R. Barker (Hereford) gave an address on "A General Practitioner in New York, with information relative to the Gowland Hopkins report, especially in relation to Tuberculosis, Abortion, Johne's Disease and Mastitis." As they were aware, he said, it was his pleasure

to go to New York for the 12th International Veterinary Congress, and the veterinary surgeons of America placed all the information they could at the disposal of delegates. The result was that he had obtained a very good insight into the work of the general practitioner over there, whose methods were worth considering by veterinary surgeons in this country. The Gowland Hopkins report cut across the life of the general practitioner, and it could never be the same again. Four diseases had been chosen for eradication, namely, the four mentioned in the title of his address, all of them affecting dairy herds. The worn-out methods of the past were being discarded, and the present situation was being used as a stepping-off ground for a fresh advance. He was glad he had seen the position in New York State, because the cattle population there was comparable with that of England.

If they took these four diseases, they would find that they had much in common. They were incurable by every known method, and, therefore, tended to become chronic, and three of them were communicable to human beings. In three cases out of four biological and bacteriological tests gave an accurate diagnosis ; and in three cases out of four, also, the etiological agent was known and belonged to the bacteria. Where they differed was, that two were due to Gram-positive acid-fast bacilli, one was due to a Gram-negative bacillus, while the postulated organism of mastitis was Gram-positive. The policy based upon these known facts was eradication, to do which successfully, they must have the sympathy of the public, and he did not think it was a difficult matter.

Capt. Barker next described how the veterinary profession was organised in America. There was a Bureau of Animal Industry, the chief of which was Dr. J. R. Mohler. His three great departments were the Federal Meat Inspectors, the Laboratory Staff and the Field Staff. The chief of the Federal Meat Inspectors was Mr. R. P. Steddom, under whom were whole-time veterinarians. Chief of the Laboratory Staff was Dr. Dorset, who was responsible for the production of tuberculin. The chief of the Field Staff was Dr. Wight, on whom the work of tuberculosis eradication fell. Under him were Federal Agents and State Agents. The chief Federal Agent in New York State, a whole-time man, was Mr. H. B. Leonard, and practitioners worked under him. The chief State Veterinarian in New York State was Dr. Faulder, under whom practitioners also worked. It would appear that the profession was mobilised for eradication work very much on the lines of the report which their Hon. Secretary had read to them that afternoon for adoption in this country. In America, the general practitioner came very prominently into the picture. The training ground was the New York State Veterinary College at Ithaca, which formed part of Cornell University. When he visited this college he found men there with wide clinical experience, whose troubles were very similar to those encountered in this country.

Dealing with tuberculosis in New York State, Capt. Barker said it was the first of the diseases marked for eradication. The scheme was voluntary and co-operative in character, between the veterinary profession and the stock owners. In America, the incidence of tuberculosis was not as great as it was in England. It was heaviest in the Eastern States, and heaviest of all in the vicinity of the large towns, which was similar to our own experience. One point he would like to mention in connection with Dr. Mohler, was that the United States Government called in the aid of veterinary science when it was doing any social planning—a lesson which our own Government might very well learn. They also went in largely for propaganda in carrying out this policy of eradication, but they did not stress the subject of bovine tuberculosis in children. They found that it discounted their effort by casting the suspicion that there was some axe to grind, though what better argument existed for eradication than the danger to children he (Capt. Barker) could hardly conceive. What the Americans did emphasise were the social benefits to the community which the eradication of this disease must bring, such as new enterp.ise, new industries, enhanced value of cattle, better prices and markets for products and the facilitating of the inter-State movement of cattle.

He was specially interested in the work of Dr. Dorset, who manufactured the whole of the tuberculin used in connection with the eradication scheme, and he got into personal communication with him. " I asked him to let me know how it was prepared, and he very kindly sent me the information," added Capt. Barker.

It was prepared, according to Dr. Dorset, by seeding the human tubercle bacillus on to synthetic media and was steam sterilised, with no precipitation by NH_4SO_4. The result was a product entirely free from foreign proteins. The actual test was very interesting, and he was informed that thousands of animals were being tested every day. One minim of tuberculin was injected into the caudal fold as superficially as possible, and at the same time another minim was injected into the vulva or anus. The reading was taken after 72 hours. Any œdema larger than a match head indicated a reactor. Doubtful reactors were classified as positive when the percentage of reactors was large, and as negative where the percentage was small, but those were sent back to be re-tested.

All cows to be tested were ear-tagged on the right ear. All reactors were T-branded on the cheek and ear-tagged on the left ear. All reactors, also, were sent to the abattoir and inspected by the Federal meat inspectors. The valuation

or appraisal was made by the Federal agent and net salvage was paid direct to the owner. Of the remainder, the Federal Government paid a third, the State paid another third and the farmer himself had to stand the other third. Thus if a cow was valued at £20, but having failed to pass the test made only £5 at the abattoir, this sum would be paid direct to the farmer, and of the £15 difference, the Federal Government gave the farmer £5 and the State gave him £5, so that his own actual loss would be £5.

The scheme was already making great progress. The accredited herds up to August, 1934, numbered 227,638, representing 3,400,000 cattle. It might be asked whether any difficulties were encountered. Certainly there were. A percentage of reactors showed no microscopical lesions, but Dr. Mohler considered the test more accurate than a *post-mortem*. Where the initial test showed a majority affected, a large proportion of the remainder went down at the subsequent tests, and hence the decision of placing doubtful reactors. Swine tuberculosis tended to keep infection on the farm, so that eradication must include swine. Avian tuberculosis was also rampant and a frequent cause of tuberculosis in swine, so that was another problem which had to be tackled.

Although he had described the scheme as voluntary, Capt. Barker said there was one side of it which was not. In building up the herd again, after slaughter, it was compulsory that the farmer should purchase cattle that had passed two tests in one year. The general effect upon the industry was that better milk was produced and prices increased.

With regard to Johne's disease, he had not found much evidence of it in the United States. It was certainly not as prevalent there as it was in Europe. Consequently, the veterinary profession in America was not faced with quite the same problem as in this country. It was, however, included in the eradication scheme and they used johnin and avian tuberculin.

Abortion due to *Brucella abortus* was also being made the subject of voluntary eradication. Segregation or partial segregation had proved satisfactory when the farmer would agree to repeated tests. Concerning the agglutination test, practitioners took the blood in experimental work and the laboratory reported to the owner and to the practitioner. There was a retest every two months until there were two successive clean tests, and then twice yearly. He thought the nature of the disease was better understood in America. Calves might be born infected or become infected from the milk of infected dams. A small percentage carried this infection into breeding life, the greater percentage casting it off. Calf control was one of the measures adopted for prevention. The farmer was assured that by eradication he would get a greater productive capacity from his herd and more calves, and that was why the farmers submitted voluntarily to the scheme. The *Brucella abortus* gave rise to many troubles—infected genitals, definite illness and lack of growth and productive capacity, leading in turn to abortion, sterility or tolerance. In recruiting for an infected herd, reactors were the best purchase—mixing like with like—but fresh, clean migrants in an infected herd would be certain to cause a "flare up."

With regard to mastitis, he had been specially interested in Dr. Udall's conception of the disease, and the latter had formulated a scheme for controlling it by clinical examination. Dr. Udall held that in every udder which was going to break down with mastitis, one would find some induration, and this was the precursor of a more definite mastitis. By a clinical examination any veterinary surgeon trained to accept this conception of the disease could classify all the cattle he examined. He divided the cattle examined into four classes—normal, slight, distinct and marked—according to the amount of fibrositis. The cattle were arranged in this sequence in the byre and milked in that rotation. Dr. Udall held that the spread of mastitis was from the hands of the milker or from the machine. He had read Dr. Udall's book, and thought that if his ideas were put into operation in this country the effects would be very far-reaching. Along with the clinical examination, Dr. Udall used a series of tests for fibrosis—the thybromol test for alkinity, the chlorine test, the test for leucocytes in milk and the test for streptococci in milk. They identified the streptococcus by means of the bacteriological stain and they placed some reliance on it, but not so much as we did in England.

Thus they would see that the eradication of these four diseases was being dealt with by a whole-time staff in co-ordination with the general practitioners in New York State. Veterinarians were expected to control mastitis in this way—if at present unable, they must take a course at Ithaca, and if then unable, their services were dispensed with. The details in all respects were very thorough, and Capt. Barker described at length the elaborate cleansing process so that the animal might be sterilised before being taken on the rotolactor, a wonderful piece of machinery.

Discussion

Major Chambers, who opened a discussion (which was limited owing to time) referred specially to the subject of abortion. He said he had had some terrible shocks from the agglutination test, and had sometimes been very disappointed. He had abortion in one herd for seven years, with an average of 40 per cent. sterility. He was asked by the owner to under-

take eradication. He examined each cow and found 80 per cent. were not in calf, and the agglutination test showed that 75 per cent. were reactors. A large percentage of the reactors had been in the herd four or five years and had never made their calf although they had been regularly to the bull. He put them into a pasture which had not had cattle in before. At the third test, he found all clear, and at the fourth test five reacted and then three aborted. The trouble was that one could not buy accredited cattle and one had to go on for years. He would not accept anyone's certificate himself unless he got one from the laboratory. He would like to ask Capt. Barker whether the effect of eradication was increased prices for clean cattle.

Capt. BARKER: "Yes, anything from 20 to 40 dollars—that is, from £4 to £8."

Maj. CHAMBERS: "Then it is worth while."

Capt. H. W. DAWES said that, with regard to the double intradermal test, he thought the fact that the second injection was necessary was a source of weakness. Another point was that the problem of the doubtful reactor did not appear to be regarded very seriously. Any man who used the interdermal test, particularly for the Ministry, always had a certain amount of misgiving, and to inject again into an already inflamed part seemed to be a violation of all the accepted principles. He looked forward to the day when they would have an established technique without this.

Mr. WATSON, referring to mastitis, asked whether the infection was carried by flies. An experience of his rather bore out that idea. The outbreak in this case was at first thought to be due to the milking machine, but this was proved not to be so, and he could only attribute it to flies or mosquitoes, for there were mosquitoes about.

Mr. LAKE said one thing he could not quite understand was the method of replacement. He should have thought that under this wholesale system of eradication replacement would be difficult.

Mr. WILKINSON said the same thing had struck him. It would be interesting to know what percentage of farmers in New York State were adopting this system of eradication.

The HON. SECRETARY said the small attendance was disappointing, because they had heard such an excellent address, from which there was much to be learned. He would like to know something about the fees which the practitioners in New York State received for these various duties, for he did not suppose they were public philanthropists who worked for nothing. Did they receive so much per test and were the fees uniform? He agreed with Major Chambers that the agglutination test resulted in many misgivings. With regard to abortion, he had a herd with 70 per cent. reactors in it, but he had had practically no sterility. That had surprised him, and no more than two cows had failed to conceive out of a herd of 130 after taking the bull. He was under the impression that summer garget was largely fly-borne. The veterinarian would certainly be "discharged" in this country if he could not clear up mastitis. He thought milking machines had a good deal to do with transmitting certain types of mastitis from animal to animal, and one way he had managed to check it was by reverting to hand-milking. He agreed with Capt. Dawes about the double intradermal test, which he always applied with some misgivings.

The PRESIDENT observed that the address was specially interesting to him because he had lived in America. One thing to note was that out there they did not have the same system of markets as we had here, namely, one every five or six miles. He thought the great number of our markets helped to spread disease. As far as Johne's disease was concerned, the climatic conditions in America might account for the disease not being so common as it was here. He was taught in America that swine tuberculosis arose from cattle, but it had now been proved, at any rate in Nebraska, that swine tuberculosis was avian in origin.

Capt. BARKER, replying to the discussion, said he had purposely omitted several points for the sake of brevity, and it was interesting to note that some of them had been raised by the speakers. On the question of replacement, he specially asked about it when he was in America, and was told that a farmer went into another State to purchase his cattle, which were double tested for disease, and he was not allowed to bring them into his own State until they had been so tested. As to the effect of eradication upon prices, there was no doubt whatever that it enhanced them. Herefordshire was probably as free from tuberculosis as any part of New York State, but Herefordshire was a beef cattle county as well as a dairying county. If we had the same percentage of beef cattle in this country he thought our tuberculosis record would be no worse than it was in the United States.

With regard to the intradermal test, he believed it was foisted on the profession to their detriment, and if there was one thing that had thrown practitioners against the whole-time man it was this. It was to be condemned both on the practical and on the theoretical side. Seven-ninths of the cattle population of America were under supervision and the other two-ninths were waiting to be tested and awaiting supervision. As to the payment to practitioners, he was told a man got 2 dollars 50 cents as a journey fee and 20 cents for each animal tested, plus 5 cents a mile for his car. This mileage allowance might seem small in England, but it was not so small in America, where cars and

petrol were very much cheaper. One tribute he would like to pay the American veterinarian was that he showed no reluctance in telling one or showing one whatever he could. "I know of no clinician in this country," said Capt. Barker, in conclusion, "who has the same resources behind him as has a veterinary practitioner in the State of New York. Everyone engaged in the cattle industry, from the surgeon down to the humblest worker, seems to have someone standing at his elbow to help him in his work. I was over there in 1915 and the progress they have made since then is far greater than one could have imagined."

A vote of thanks was accorded to Capt. Barker for his address, and at the close of the proceedings the company were entertained to tea by the President.

H. W. Steele-Bodger, *Hon. Secretary.*

In Parliament

The following questions and answers have been recorded in the House of Commons recently:—

Attested Herds Scheme

Brigadier-General Clifton Brown asked the Minister of Agriculture whether he is aware that under the rules required to be observed for qualification in the Ministry's attested herd scheme it is practically impossible to make any contract for selling milk; whether any bodies of registered producers have been consulted on these rules; and whether he will take steps to have them amended in consultation with representatives of milk producers, so that a workable scheme can be evolved?

The Minister of Agriculture (Mr. Elliot): The Milk Marketing Board and the Association of Producers of Certified and Grade A (Tuberculin Tested) Milk were consulted upon the Attested Herds Scheme before it was issued; and no representations were made that the conditions of the scheme would interfere with contracts for the sale of milk from attested herds. I am advised that the conditions of the scheme, though they may appear stringent, are the minimum necessary to attain the object in view, namely, the establishment and maintenance of herds free from tuberculosis. I should be glad however to consider any representations on the subject.

Brigadier-General Brown: It the Minister aware that there has been some misunderstanding of these regulations; and will he be kind enough to consider the representations of the producers with a view to clearing up those misunderstandings?

Mr. Elliot: I have said that I would be very glad to consider any representations.

Mr. Glossop: Arising out of the original reply, can the right hon. Gentleman tell the House the number of producers who expressed a desire to qualify under the scheme?

Mr. Elliot: I am afraid I could not give that information.

The farmer's rapid change over from the iron tyred cart to the pneumatic type is reflected in the fact that a Birmingham firm has recently received orders for more than 4,000 tapered roller bearings to be used for the axles of new farm carts.

QUARANTINE MEASURES FOR SHANGHAI

"Quarantine restrictions on dairy animals imported from abroad were decided on by the Shanghai Municipal Council on October 31st," says *The Inspection and Commerce Journal* (Shanghai).

"Quarantining of animals in dairies licensed by the Council has been enforced as strictly as circumstances have permitted during the last two years, with quite satisfactory results, but hitherto no steps have been taken to quarantine animals imported from abroad. As until lately animals have usually been imported in small numbers by private dairies, the owners of which, in their own interests, saw to it that the new arrivals were quarantined to some extent, existing measures were sufficient to meet the situation.

"Recently, however, large batches of animals have arrived, with resultant risk of conveyance and spreading of infectious diseases. Hence, the Commissioner of Public Health closely investigated the subject and proposed that steps be taken to minimise this risk.

"The Commissioner submitted to the Health Committee that if it were possible to insist that animals imported to dairies licensed by the Council be accompanied by a bill of health signed by the veterinary surgeon, or other official, of the country of origin, stating that a number of specified diseases were absent in the area from which the cattle came, it should then be possible to pass animals directly over to the consignee provided a previous checking examination by the Municipal Veterinary Surgeon were made.

"It was possible that such an examination would reveal certain animals suspected of disease, and contacts with these animals would also have to be isolated, but normally isolation of animals coming from a recognised herd should be rare, providing the above condition were observed. In some instances the voyage, provided no animals died *en route* from infectious diseases, would act as sufficient quarantine period.

"If quarantine accommodation were required, the Commissioner suggested that the upper floors of the abattoir lairage would serve for a few years to come, without in any way endangering the meat supply, provided due precautions were taken by the Health Department.

"After consideration of the Commissioner's scheme and of a detailed report and statistical tables prepared by the Veterinary Surgeon, the Health Committee recommended adoption of the suggested quarantine - measures. The Council endorsed the recommendation."

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UNIVERSITY OF LONDON LECTURES IN VETERINARY SCIENCE

The University of London announce that, in connection with the Special University Lectures in Veterinary Science, a course of two lectures on "The Importance of the Veterinary Profession in Public Health Administration," will be given at the Royal Veterinary College by Major D. S. Rabagliati, O.B.E., B.Sc., F.R.C.V.S., D.V.S.M. (Chief Veterinary Officer to the County Council of the West Riding) at 5.30 p.m. on Thursdays, February 28th and March 7th. In his first lecture Major Rabagliati will speak of the growth of legislation in Great Britain dealing with the control of animal disease, especially in respect of those diseases inter-communicable between animals and man, while his second lecture will be devoted to the consideration of milk and its relation to public health, with special emphasis on the value of veterinary science in ensuring a clean milk supply. Admission is free, without ticket.

N.V.M.A. Congress at Belfast, July 29th to August 2nd, 1935

PROVISIONAL PROGRAMME

The following is the Provisional Programme of the Association's Congress, to be held at Belfast from July 29th to August 2nd, 1935:—

	JULY		
SUNDAY,	28TH,		—"At Home," North of Ireland Veterinary Medical Association.
MONDAY,	29TH,	*9.30 a.m.*	—Opening of the Congress (Civic and Academic Reception). (Queen's University.)
MONDAY,	29TH,	*10.30 a.m.*	—Opening of Exhibition of Surgical Instruments, Drugs, etc., by the President. (Examination Hall, Queen's University.)
MONDAY,	29TH,	*11 a.m.*	—Paper: "Red-water in Cattle." (Physics Lecture Theatre.)
MONDAY,	29TH,	*Afternoon.*	—Short Tour and visit to City Abattoir.
MONDAY,	29TH,	*Evening.*	—Civic Reception.
TUESDAY,	30TH,	*9.30 a.m.*	—Paper: "Coccidiosis in Bovines and Poultry." (Physics Lecture Theatre.)
TUESDAY,	30TH,	*11 a.m.*	—Paper: "The Veterinary Surgeon in the Control of Milk with Special Reference to Communicable Diseases." (Physics Lecture Theatre.)
TUESDAY,	30TH,	*Afternoon.*	—Operations. Tour, Co. Down.
TUESDAY,	30TH,	*Evening.*	—President's Reception.
WEDNESDAY,	31ST,	*9.30 a.m.*	—Paper: "The Modern School of Thought on the Practical Effect of Certain Unsoundnesses on the Serviceability of Riding Horses." (Physics Lecture Theatre.)
WEDNESDAY,	31ST,	*11 a.m.*	—Paper: "Parasitic Worms of the Alimentary and Respiratory Tracts of Bovines." (Physics Lecture Theatre.)
WEDNESDAY,	31ST,	*1 p.m.*	—Congress Photograph.
WEDNESDAY,	31ST,	*2.30 p.m.*	—Council Meeting. (Queen's University.)
WEDNESDAY,	31ST,	*3.30 p.m.*	—Annual General Meeting. (Queen's University.)
WEDNESDAY,	31ST,	*Evening.*	—Annual Banquet. (Grand Central Hotel.)
	AUGUST.		
THURSDAY,	1ST,		—Tour of Coast Road, Lunch at Giant's Causeway Hotel, home inland.
THURSDAY,	1ST,	*Evening.*	—Dance arranged by Ladies' Benevolent Guild.
FRIDAY,	2ND,	*9.30 p.m.*	—Paper: "Food Inspection as Carried Out by a Veterinary Public Health Department." (Physics Lecture Theatre.)
FRIDAY,	2ND,	*3 p.m.*	—Closing Meeting.

SUBJECTS FOR PAPERS

VETERINARY MEDICINE AND SURGERY SECTION

(*President*: *J. Ewing Johnston, Esq.*, M.B.E., J.P., M.R.C.V.S.)

(*Vice-President*: *J. Kernohan, Esq.*, M.R.C.V.S.)

(*Recording Secretary*: *R. Moore, Esq.*, M.R.C.V.S., D.V.S.M.)

1.—"The Modern School of Thought on the Practical Effect of Certain Unsoundnesses on the Serviceability of Riding Horses."
By Major C. H. S. Townsend, O.B.E., M.C., F.R.C.V.S., School of Equitation, Weedon.
Opener: P. J. Howard, M.R.C.V.S., of Ennis, Co. Clare.

2.—"Red-water in Cattle."
By F. T. Harvey, F.R.C.V.S., St. Columb.
Opener: F. W. Hart, M.R.C.V.S., Enniskillen.

EXPERIMENTAL PATHOLOGY SECTION

(*President*: *Professor J. Basil Buxton*, M.A., F.R.C.V.S., D.V.H.)

(*Vice-President*: *Professor T. G. Browne*, M.R.C.V.S.)

(*Recording Secretary*: *P. L. Shanks, Esq.*, B.Sc., M.R.C.V.S.)

1.—"Coccidiosis in Bovines and Poultry."
By H. G. Lamont, M.Sc., M.R.C.V.S., Stormont.
Opener: N. Dobson, B.Sc., M.R.C.V.S., Weybridge.

2.—"Parasitic Worms of the Alimentary and Respiratory Tracts of Bovines."
By Colonel W. A. Wood, C.B.E., M.A., M.R.C.V.S., Cambridge.
Opener: E. L. Taylor, M.R.C.V.S., B.V.Sc., D.V.H., Weybridge.

PUBLIC HEALTH SECTION

(*President*: *F. J. Daly, Esq.*, M.R.C.V.S.)

(*Vice-President*: *Major Brennan DeVine*, M.C., F.R.C.V.S., D.V.S.M.)

(*Recording Secretary*: *A. McLean, Esq.*, M.R.C.V.S., D.V.H.)

1.—"Food Inspection as carried out by a Veterinary Public Health Department."
By Lieut.-Colonel T. Dunlop Young, O.B.E., M.R.C.V.S., D.V.S.M., London.
Opener: Arthur Gofton, F.R.C.V.S., Edinburgh.

2.—"The Veterinary Surgeon in the Control of Milk with Special Reference to Communicable Diseases."
By P. F. Dolan, M.R.C.V.S., D.V.S.M., Dublin.
Opener: J. N. Ritchie, B.Sc., M.R.C.V.S., D.V.S.M., Edinburgh.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Feb. 21st.—Meeting of the Society of Veterinary Practitioners, at Bristol, 2.30 p.m.

Feb. 22nd.—Meeting of the North Wales Division, N.V.M.A., at Wrexham, 2.15 p.m.

Feb. 25th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, at 4 p.m.

Mar. 1st.—Meeting of the Southern Counties Division, N.V.M.A., at Salisbury, 2.30 p.m.

Mar. 8th.—Annual Dinner and Dance, Yorkshire Division, N.V.M.A., Guildford Hotel, Leeds, 7 for 7.30 p.m.

April 1st.—R.C.V.S. Annual Fees due.

April 3rd.—R.C.V.S. Committee Meetings.

April 4th.—R.C.V.S. Committee Meeting.

April 5th.—R.C.V.S. Committee and Council Meetings. Council Meeting 2 p.m.

May 9th.—Last day for nominations for election to R.C.V.S. Council.

May 23rd.—Voting Papers issued R.C.V.S. Council Election.

May 30th.—Last day for return of Voting Papers R.C.V.S. Election.

June 6th.—R.C.V.S. Annual General Meeting, 12 noon; Luncheon, 1.15 p.m.
Annual General Meeting, Victoria Veterinary Benevolent Fund, 12.45 p.m.

June 13th.—D.V.S.M. Examination begins, Edinburgh.

July 29th—August 2nd: N.V.M.A. Congress at Belfast.

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OBITUARY

Sumner.—February 11th, at Springfield Cottage, West Derby, Margaret, the dearly-loved wife of Henry Sumner.

Sumner.—February 9th, at Springfield Cottage, West Derby, Sydney Hope Sumner, of Fran-Haul, Gwernaffield, Mold, the dearly loved son of H. and M. Sumner.

The deepest sympathy of his fellow members of the veterinary profession will be extended to Mr. Henry Sumner, M.R.C.V.S., of Liverpool, in his grievous loss.

Mr. Sumner's son, Sydney, had been ill for a considerable period at Springfield Cottage, Eaton Road, West Derby, Liverpool. For some time it had been felt that the issue would be a fatal one, and Mrs. Sumner's health had been undermined by anxiety concerning her son. She took to her bed a few days before her son's death, and succumbed two days after Sydney Sumner had passed away. Mr. H. Sumner, Jun., M.R.C.V.S., his wife and family, live quite near. The late Mr. Sydney Sumner lost his wife some years ago.

PERSONAL

Appointment.—Mr. S. Sharp, M.R.C.V.S., D.V.S.M., Assistant Veterinary Officer, West Riding County Council, has been appointed Veterinary Officer and Chief Meat Inspector to the County Borough of Barrow-in-Furness. Mr. Sharp has for the past six-and-a-half years been a member of the West Riding Veterinary Department and during that time has been Hon. Secretary of the Yorkshire Division, in which latter post he is being succeeded by Mr. E. F. McCleery, M.R.C.V.S., D.V.S.M.

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The following Colonial Veterinary Service appointments are announced: Mr. J. de Meza, M.R.C.V.S. (Veterinary Bacteriologist), as Chief Veterinary Officer, Nyasaland; Mr. R. M. Gambles as Veterinary Officer, Cyprus.

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ATTESTED HERDS: ROYAL AGRICULTURAL SOCIETY'S CRITICISM OF MINISTRY'S SCHEME

The secretary of the Royal Agricultural Society has addressed a letter to the Minister of Agriculture in connection with the arrangements made by the Ministry under section 9 of the Milk Act, 1934, for promoting the establishment of cattle herds to be officially certified as free from tuberculosis, in which he writes:—

My council wish me to assure you of its wholehearted sympathy and support in any real attempt to decrease the incidence of tuberculosis among the cattle herds of the country. But I am instructed to convey to you most respectfully the profound disappointment of the council at the scheme which you are attempting to put into operation, as the council is of opinion that the scheme is impracticable, will make little advance in the desired direction, and will merely waste both money and time. The council has formed regretfully this adverse opinion of the scheme for the following reasons:—

1. Its conditions are so rigorous that only the owners of those herds which are already quite, or nearly, free from the disease can hope to profit by the scheme before its expiration in four years' time.

2. The bonus of 1d. a gallon of milk is quite insufficient to induce owners of herds with an incidence of the disease even as low as 10 per cent. to make the initial effort and incur the necessary expense. This scheme entirely lacks the encouragement, persuasion, and personal touch which formed the basis of the success of the scheme carried out by the Hannah Institute for Research in Dairying.

3. It has been shown above that only herds already clear, or nearly clear, can hope to benefit. But these very herds—*i.e.*, Certified, Grade A (T.T.), and private herds producing milk solely for consumption of the owners' family and dependents, are expressly ruled outside the scope of your "attested" scheme, as they are not "registered producers" under the Milk Marketing Scheme.

4. Even if producers of Certified and Grade A (T.T.) milk wished to become registered producers under the Milk Marketing Scheme and so become eligible for your attested scheme, the difficulties which would arise make it not worth while, as the regulations of the respective Ministry's schemes are incompatible. In addition, the levies to which they would inevitably become liable would exceed the 1d. a gallon they might earn.

MILK MARKETING: INQUIRY INTO WORKING OF SCHEMES

The Secretary of State for Scotland and the Minister of Agriculture and Fisheries have appointed an Agricultural Marketing Reorganisation Commission for Milk, with the following terms of reference:—

1. To consider the working of organised milk marketing in Breat Britain under Milk Marketing Schemes and its incidence on production, distribution and consumption, and to make recommendations for further improvement.
2. To consider and report on the extent to which, and the manner in which, organisation could be facillitated by closer co-operation between the Marketing Boards concerned, or by the amalgamation of some or all of the schemes, including any schemes at present under consideration, or by other adjustments, and to prepare schemes for giving effect to any such adjustments.
3. To consider and report on the extent to which, and the manner in which, the organisation of milk marketing in Great Britain could be facilitated by closer co-operation between Milk Marketing Boards in Great Britain and the appropriate authorities in Northern Ireland.

The Government of Northern Ireland have been consulted with regard to the terms of reference and have intimated their willingness to afford every assistance to the Commission in the solution of their problems.

The composition of the Commission will be: Mr. A. E. Cutforth, C.B.E. (Chairman), Professor A. W. Ashby, M.A., Sir Iain Colquhoun, Bt., D.S.O., Sir John Orr, D.S.O., M.C., M.A., M.D., D.Sc., F.R.S. and Miss D. S. Tomkinson, M.A., J.P.

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FOOT-AND-MOUTH DISEASE IN SUSSEX

The Ministry of Agriculture announced last week-end that an outbreak of foot-and-mouth disease had occurred among cattle at Hambrook, Chichester.

The area subject to restrictions in the movement of animals covers part of West Sussex and Southampton.

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HUNTER, PONY AND ARAB SHOWS

The fifty-first annual show of the Hunters' Improvement and National Light Horse Breeding Society will be held, under the presidency of Lord Fortescue, at the Royal Agricultural Hall, Islington, on Tuesday, Wednesday and Thursday, March 19th to 21st.

A total of £880 will be given in prizes for hunters, divided among 16 classes. Sixty-eight premiums of a value of £125 each will be offered for award to thoroughbred stallions, entered or eligible for entry in the General Stud Book, not under four or over 20 years old, to travel prescribed districts in England, Scotland and Wales. Special premiums of the value of an additional £75 will be awarded to (*a*) the champion and reserve champion stallions, and (*b*) stallions ten years old and under on January 1st, 1935, the number of which will be dependent on the quantity and quality of the young horses entered, but will not be less than eight unless the judges decide to withhold through lack of merit. The offer of the latter special premiums is made to encourage the purchase of young stallions, which is considered at the present moment of vital importance to the premium stallion scheme.

The thirty-sixth annual show of the National Pony Society will be held, as usual, in conjunction with the Arab Horse Society, at the Royal Agricultural Hall, Islington, on Friday and Saturday, March 22nd and 23rd, after the Hunter Show. The value of the prize list is over 1,000 guineas, divided among 51 classes. Of this sum, £365 will be given in the 12 breeding classes; £256 among the nine riding classes; £76 for Shetland and Welsh mountain ponies (eight classes); £182 for Arabs (eight classes); £43 for children's riding and equitation tests (five classes); and £132 for competitions (nine classes). The value of challenge and champion cups offered is £281.

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INTER-COLLEGIATE RUGBY

London Defeat Dublin at Motspur Park

Last Saturday being the day of the English-Irish International, the London students had the pleasure of a visit from some of the Dublin students. The two teams met on Friday evening and this proved to be the start of a most enjoyable week-end. The home team was pleased to have Professor O'Connor present, he having travelled with the Irish team.

The inter-collegiate match started at 11 o'oclock at Motspur Park before quite a number of spectators. It was a most enjoyable game—a good hard fight, played in the right spirit. Lunch was provided at Motspur Park, after which both teams went to Twickenham to see the other International.

In the evening a most enjoyable dinner was held at Pinoli's, with Professor Wooldridge in the chair, the company including Professors O'Connor and Wright and both teams. The Chairman submitted "The Irish Team," Mr. D. Hyde replying, while the toast of "The London Team," was in the hands of Professor O'Connor, acknowledgment being made by W. J. McCubbin. The popular Chairman, whose association with this splendid series of encounters between these two colleges is both long and enthusiastic, was deservedly the recipient of a similar honour.

After the dinner the visitors were entertained to a show at the Palladium and otherwise until Sunday evening, when they were given a rousing send-off from Euston at 8.45 p.m.

The Game

London kicked off but were soon defending owing to some good kicking by Martin, Dublin's fly half. After five minutes of continuous pressure, London did get away from their own line by means of a forward rush. After 15 minutes as a result of a three-quarter movement, Edwards went over for a capital try near the corner flag, Hiles converting. Now London were doing most of the attacking and were rewarded when Comyn cut through on his own to score an excellent try near the corner flag, which Hiles failed to convert. Half-time arrived with London leading by 8 pts. to nil.

Dublin commenced the second half with their fierce forward rushes, but they were met by a "rock-like" defence in which Stephens was outstanding. London were getting the ball from the majority of the set scrums and consequently the three-quarters had more opportunities. Eventually, D. G. Morgan scored a try in the corner which Hiles converted. Soon after this London were penalised twice near their goal, but Doyle missed with the kicks. Near the end of the game, Comyn cut through once more and passed to Edwards who again scored far out, but Hiles failed to convert. The final whistle soon went and London had won a very enjoyable game by 16 pts. to nil.

The outstanding players were Comyn, Stephens, Evans and Owen for London and Doyle, Baker, Hyde, Martin and O'Brien for Dublin.

Teams. *Royal Veterinary College, London*—T. K. Stephens; D. G. Morgan, R. B. Comyn, B. C. Edmunds, G. M. Gates; W. J. McCubbin (capt.), F. V. John; H. J. Hiles, S. E. Piercy, A. G. Berry, J. M. Ridge, D. W. Owen, K. G. D. Evans, D. J. Sparke, S. L. H. Walshe.

Veterinary College of Ireland—W. Baker; S. W. Beckett, W. Bennett, W. B. Martin, J. G. McDowell; J. Nagle, F. R. O'Brien; F. S. Hart, H. M. Spears, L. F. Doyle, R. G. Powell, L. Sweatman, K. O'Sullivan, D. Hyde (capt.), P. Linnott.

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ARMY VETERINARY SERVICE

London Gazette—War Office—Regular Army

Feb. 8th.—Maj. H. C. Stewart retires on ret. pay (Feb. 9th).

Feb. 12th.—Maj. A. Hodgins, D.S.O., retires on ret. pay (Feb. 13th).

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

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AN ORGANISED VETERINARY SERVICE: N.V.M.A. SCHEME

To the Editor of the Veterinary Record

Sir,—The Report of the Special Committee, appointed to consider the Report of the Committee on Cattle Diseases of the Economic Advisory Council, which was adopted by the Council of the National Veterinary Medical Association and published in *The Veterinary Record* of February 2nd, is of such importance to the profession that I feel impelled to register a strong protest against it, and in so doing I claim to be just as interested and as enthusiastic about the welfare of our profession, including the general practitioner, as any of its members, but at the same time I am not unmindful of our duty to the community and to the animals whose well-being is, I trust, our chief if not our sole reason for being veterinary surgeons.

In order to keep my letter within reasonable limits it is only possible to criticise very briefly some of the statements made in the Report.

In paragraph 1 we are told that the Special Committee formulated an "agreed scheme" but in the report of the discussion on the scheme apparently Colonel Dixon and Captain Pillers were not in complete agreement with it and sent letters to that effect, so that it would appear to be simply not true to say that it was an "agreed scheme."

The Report has been circulated to the County Councils Association, among other bodies, and as it states that "The Special Committee, which includes representatives of all branches of the profession, has formulated an agreed scheme," etc., veterinary officers at present employed by County Authorities are placed in a most difficult position, and may be considered guilty of disloyalty and disaffection, whereas I believe exactly the contrary to be true.

When mentioning the circulation of the Report, one can hardly refrain from commenting on the extraordinary procedure mentioned in the discussion on the Report whereby copies of the Report were circulated to members of the Agricultural Committee and the County Councils Association before it was adopted by the "National" (page 139).

To say that "This scheme has the support of the profession as a whole" is misleading, because I am convinced it has not the support of whole-time veterinary officers employed by Local Authorities, and very probably a great many others.

I suggest that the proposals of the Cattle Diseases Committee for utilising the services of the veterinary profession for "the better control of all and the elimination of some of the diseases among dairy cattle" are more practical and will achieve better results than the proposals of the "National."

The proposals of the Hopkins Report were made by a Committee whose sole purpose was the examination of matters arising from their terms of reference and were based on evidence submitted to that Committee, whereas the proposals of the Special Committee were not based on evidence submitted to them, and were therefore apparently prepared with the object of benefiting the largest section of the members of the "National." If this is not so, then why did not the Special Committee take evidence to ascertain whether a part-time or whole-time service was likely to produce the best results? So long as such important matters are considered selfishly and not primarily with the sole object of determining how best the veterinary profession can serve humanity, we cannot expect, nor do we deserve, the confidence of those bodies whose approval is essential to any of our schemes.

Paragraph 4 seems to indicate that the Special Committee have missed the crux of the whole problem. In the first sentence they refer to the "Local Authorities' obligations in the interests of public health and a pure milk supply," but they do not qualify the word "obligations." If they mean moral obligations they should have said so, because the Local Authority is under no statutory obligation to take any steps on its own initiative to find a single cow suffering from tuberculosis of any type or location. Surely the remedy, therefore, is in the introduction of legislation to compel Local Authorities to carry out a routine clinical examination of the dairy herds in their districts and not in the establishment of a Department of Animal Health as the Report states.

The problem of the control of animal disease is inseparable from housing and meat inspection. These matters are, and are likely to remain, the concern of the Local Authority and to attempt to deal solely with animal disease nationally and to ignore the interdependence of the veterinary work arising from the several Acts and Orders relating to Diseases of Animals, Milk and Dairies, Meat Inspection and Knackeries indicates a complete misunderstanding of the problem.

It would appear from the scheme that the microscopical examination of milk, sputum, etc., has to be carried out in the "Area Laboratory" although it is well recognised by those in a position to know that the best results are obtained where the veterinary officer making the clinical examination also does his own microscopical examinations. This is a procedure of such paramount importance that to depart from it cannot be justified, and any attempt to do so will result in failure.

Paragraph 15 shows a complete lack of appreciation of the intelligence of the individuals and bodies to whom the Report will be circulated. I venture to suggest that no one familiar with

either Civil or the Local Government Service will believe it, and if anyone else does, it will make little difference.

With reference to paragraph 16 it would be most illuminating if the Special Committee would publish their figures to show that their Scheme would be more economical than that suggested by the Cattle Diseases Committee.

This is the first time I have written on the subject of veterinary politics, and it is only the tremendous seriousness of the position created within the profession by the Report of the Special Committee that has induced me to do so.

Yours faithfully,

H. L. Torrance.

County Veterinary Officer.

Nottinghamshire Veterinary Department,
Shire Hall,
Nottingham.
February 11th, 1935.

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TUBERCULOSIS AND THE INTRADERMAL TEST IN THE HORSE

To the Editor of the Veterinary Record

Sir,—Further to Mr. Conisbee's letter in *The Veterinary Record* of the 9th inst., I would like to state that in December of last year, I examined a seven-year-old Shire gelding which was in very poor condition, and suffered from chronic diarrhœa. There was an obvious stiffness of the neck. On rectal examination, the abdominal lymph glands were found to be enlarged.

Tuberculosis being suspected, the double intradermal tuberculin test was applied, concentrated synthetic tuberculin (Cambridge) being used. There was no reaction.

The following week the animal was destroyed, and a *post-mortem* examination revealed a widespread tuberculous infection of the mesenteric lymph glands, and also several tuberculous abscesses in the spleen.

Last Thursday I was called to see an aged pony, about 14 hands high, which was down in a field, and on arrival, found it obviously to be dying. Later in the day I performed a *post-mortem* examination on the carcase, and found that the spleen contained three very large tuberculous abscesses.

The liver was very enlarged, and actually weighed 48 lbs. The kidneys also were about three times larger than the normal size. Neither the liver nor kidneys, however, showed lesions of tuberculosis, and I wonder whether their condition was due to the tuberculosis infection, or to some malignant cause?

Yours faithfully,

C. Munro.

Bridge Road,
Wellington,
Shropshire.
February 11th, 1935.

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CLINICAL SIGNS IN THE INTRADERMAL TEST

To the Editor of the Veterinary Record

Sir,—In reply to Mr. Stinson's letter in *The Veterinary Record* of February 9th, I had hoped that he would have given us more definite evidence of what reactions take place in this test. At the same time I am indebted to him for raising the point, as my statement was based on taking temperatures at the 48th and 72nd hours after injection and on the opinion of owners in regard to the milk yield.

Since this controversy commenced I have tested 22 cows, of which 16 reacted and six were non-reactors.

Of the reactors, six showed an increase of temperature between the first injection of the tuberculin and the 48th hour after. Four of these had returned to normal by the 48th hour and all of them by the 72nd hour.

The milk yield was only decreased in one cow, *viz.*, No. 6, the other five reactors showing no decrease in milk yield in spite of an increase in temperature.

The temperatures and milk yields of the remaining 16 cows (10 reactors and six non-reactors) remained normal.

The temperature and milk yield charts of the above six cows are as follows:—

No.	At injection	15th	24th	48th	72nd
1	101·8	104·4	105·2	103	102
2	102	102·4	104·4	102	102·2
3	101·6	102	104·2	102	101·8
4	102·2	102	104	101·4	101
5	101	103·2	104·4	104·2	101·2
6	100·8	105·8	104	101·6	100·4

No.	Day of 1st Injection lb.	1st 24 hrs. after lb.	2nd 24 hrs. after lb.	3rd 24 hrs. after lb.
1	35	35	36	35
2	30	34	30	42
3	18	20	23	20
4	42	41	40	40
5	37	39	36	37
6	30	20	25	28

From the foregoing limited number of tests on 22 animals it would appear that the temperature is usually normal at the 48th and 72nd hours. A small number of reactors show an elevation of temperature and a decrease in the milk yield.

Yours faithfully,

Wm. Tweed.

Sheffield.
February 12th, 1935.

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TREATMENT OF HÆMORRHAGIC GASTRO-ENTERITIS

To the Editor of the Veterinary Record

Sir,—The article by Mr. W. A. S. Stevens and the letter by Mr. Reg. F. Wall, on this subject greatly interested me.

During a rather extensive experience of greyhounds I have met this disease very frequently and have noted the following facts associated with its incidence.

1. The disease occurs in dogs of all ages.

2. Recovery appears to confer no degree of immunity—I have had dogs in which the disease has occurred three times in twelve months.

3. It is more frequently associated with overcrowded kennels and bad hygienic conditions.

4. Fatigue, as a result of too frequent or too severe racing or coursing, is frequently associated with the onset of the disease. This would appear to be due to the lowering of resistance to infection.

5. The disease is more frequent in kennels in which a "slop" diet is fed continuously with no change at all and no fresh food.

6. Cases of the disease are often multiple in a kennel with, in my experience, no conclusive evidence suggesting contagion.

7. The disease, as I have experienced it, is a very acute one, death usually resulting, in the absence of effective treatment, in 24 to 96 hours from the onset of the disease.

8. The onset is extremely sudden and there are usually no premonitory symptoms—the first evidence of the disease being a copious fœtid dysenteric evacuation of fæces, following which the dog becomes very weak and obviously ill, rapidly "wastes," runs a temperature of 104 to 106°F., and exhibits great thirst for water. The skin becomes clammy and turgid and eventually the temperature drops to normal or subnormal. There are repeated copious evacuations of fœtid bloody diarrhœa accompanied by considerable tenesmus. The evacuations frequently appear to be almost wholly blood.

In regard to treatment, the only one I have found of value is that recommended by Dr. McCunn some years ago and which, in my hands, has given very spectacular results with a minimum of losses. This treatment is the intravenous injection of formalin mxv in 4 c.c. water. In his report on the use of this treatment I believe he recommended the administration of raw meat as soon as the dog would take it, which is usually within 12 to 24 hours following the injection of formalin, but I found that results were far better if glucose ʒi in ʒi tepid water was given every six hours for the first 24 hours, followed by milk (either whole or 50 per cent. milk and 50 per cent. lime water well shaken up) for the next 24 hours and then white bread and milk, rice pudding and cooked meat the following day.

Bodily warmth is very essential—this being provided by coats, ample bedding and hot water bottles together with fires or heaters when available. The dog is kept absolutely at rest. Water is rigidly withheld for 72 hours.

With this method of treatment the mortality in well over 200 cases of acute hæmorrhagic enteritis has been less than 4 per cent.

Occasionally it has been thought necessary to repeat the injection of formalin in 24 to 48 hours, but this has been in only a small percentage of cases. The dog is usually convalescent in three to four days but careful nursing is continued for ten days, following which exercise is commenced and gradually increased and the dog put into training in about 21 days.

In kennels in which multiple cases have been occurring I have found that the incidence of the disease can be controlled by changing the diet at once and keeping it changed for a period of five to seven days, giving a diet of fresh milk, white bread, rice and cooked or raw meat in place of the usual brown bread "slop." A change to this diet on regular days twice weekly appeared to be associated with reduced incidence of this disease, as also did the regular periodic disinfection of all woodwork, walls, floors, etc., of kennels by means of a blow lamp effectively used.

I do not think that there is any truth in the suggestion that dogs receiving water *ad libitum* do not contract the disease—my experience negatives this view.

There is no doubt at all that the injection of formalin mxv in 4 c.c. water is a very effective cure for this disease, giving spectacular results which render further medication unnecessary.

Yours faithfully,

"Rockholme," Geo. N. Gould.
10, Landguard Road,
Southampton.

February 12th, 1935.

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The Editor acknowledges, with thanks, the receipt of the following:—

Communications from Major Hamilton Kirk (London), Mr. H. C. Watson (Hong Kong).

Reports of meetings of the Ayrshire, Royal Counties, West of Scotland and Yorkshire Divisions, N.V.M.A., from Messrs. D. Brown, H. Bell, Alex Thomson and S. Sharp, respective Hon. Secretaries.

Diseases of Animals Acts

SUMMARY OF RETURNS

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic§ Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks reported by the Local Authorities.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 16th to 31st Jan., 1935	19	21	16	3,833	11	11	38	80	26
Corresponding period in									
1934	18	18	—	—	20	31	75	111	72
1933	28	35	10	1,373	17	29	32	34	3
1932	20	26	1	67	14	17	27	90	42
Total 1st January to 31st January, 1935	37	40	17	3,913	26	33	82	143	50
Corresponding period in									
1934	30	30	—	—	34	56	162	174	99
1933	39	48	30	2,715	30	56	80	65	7
1932	38	51	1	67	27	37	56	189	70

Note.—The figures for the current year are approximate only.

§ Excluding outbreaks in Army Horses.